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L-DOPA THERAPY
PAST, PRESENT AND FUTURE



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THE PAST

Therapy for Parkinson's disease has known many stages in the 153 years since the illness was first described. Until 1950, only natural, and later synthetic, derivatives of belladona were of any use.[1] The next two decades saw the birth of two new approaches: first stereotaxic surgery with its many variants (chemotherapy, ultrasounds, freezing, heating, leucotomes), and then, on the strength of biochemical studies which demonstrated low dopamine values in the brain[2] and urines of Parkinsonians,[3] the use of a natural aminoacid precursor, L-dihydroxyphenylalanine (L-DOPA).[4, 5] The anatomical, pharmacological and physiological basis for this treatment has been reviewed in detail by many authors[6, 7, 8] and will not be outlined here. The early years of L-DOPA therapy from 1961 to 1967, using the intravenous or oral routes, led to the demonstration that L-DOPA could be effective in releaving both the rigidity and akinesia of parkinsonian patients.[8] In 1967, Cotzias and his co-workers[9] increased the daily dose of L-DOPA, by slow incremental steps, to levels as high as 8 grams/day. They confirmed the earlier reported effects on akinesia and rigidity, and for the first time, clearly demonstrated that marked improvement could be obtained for sustained periods of time.

Large series of patients have now been treated with this new L-DOPA regimen and the reports are essentially similar from one center to the next.[8, 10, 11, 12] Therefore a look at our own results may serve as a baseline to delineate the unresolved problems, and to indicate guidelines for future research and improvements.

THE PRESENT

a) **Results**

Since 1968 we have treated, for periods exceeding two months, 123 parkinsonian patients(*). We will analyse in the present paper the results in the first series of 100 consecutive cases. The therapeutic regimen has been described elsewhere,[8] but essentially was a slow, gradual titration of the drug over a period of 4 to 6 weeks. The average maintenance level for the first 3 months was 4.8 grams/day, but after 18 months this had decreased to 3.6 grams/day. All our patients were hospitalized during the work-up period in order to permit metabolic studies. Performance of the patients was measured by a battery of tests previously described[8] and the results, transposed into a total score, are expressed as percentage improvement over the baseline control period.

Seventy-four of the 100 patients were improved by more than 50% in their general performance (Table 1). Moderate improvement, usually manifested by modification of one or more symptoms without overall satisfactory changes, was observed in a further 14 patients. There were 12 failures, due to side effects (3 cases) or absence of objective improvement (9 cases) even at maximum dosage. Despite a measurable reduction in rigidity, many of these latter patients refused to cooperate and often became depressed, a state which, combined with lack of motivation, contributed to the ultimate failure of treatment.

TABLE 1
Results of L-DOPA Therapy in Parkinson's Disease (first 100 patients)

Objective Range of Functional Improvement after 2 Months of Treatment		No. of Cases and %
80-100%	(Very good)	12
50- 79%	(Good)	62
20- 49%	(Moderate)	14
0- 19%	(Poor)	12

(*) Treatment of these patients was carried out with the collaboration of Drs. L. Gillo-Joffroy, H. Mars, A. Schwartz, and I. Libman.

In our experience there has been at least partial improvement in almost all symptoms of Parkinson's disease in the majority[8] of patients. The degree of this improvement is greater by a factor of two or three than that previously obtained by conventional anticholinergic or antihistaminic medication, and in most cases is greater than the benefits obtained with stereotaxic surgery. The most important factors in obtaining significantly favorable results and in avoiding major side effects from L-DOPA treatment appear to be the gradual upward titration of the oral dose, as well as a program of mobilization.

b) **Side effects**

L-DOPA, if properly titrated, is a generally safe drug, at least over a 3 year period of administration. Side effects do occur however, and are listed in Table 2. Nausea and/or vomiting may be present in 45% of treated patients during the initial phase, and particularly if L-DOPA is increased too rapidly, or given on an empty stomack. This disagreement will usually disappear after a plateau level is obtained or after a few weeks. Very few patients complain constantly of these symptoms, which can be made worse by a strange metallic, or garlic-like, taste in the mouth.

TABLE 2
Clinical Side Effects of L-DOPA
(after a minimum of 2 months of treatment in 100 patients)

Side Effects		No. of Cases and %
1—Abnormal involuntary movements		48
2—Nausea and/or vomiting		45
3—Hypotension		30
a) Symptomatic	(11)	
1—with complications	(9)	
• myocardial infarcts	(4)	
• C.V.A.	(2)	
• pulmonary embolus	(1)	
2—without complications	(5)	
b) Asymptomatic	(19)	
4—Changes in taste		22
5—Constipation		20
6—Confusion, hallucinations, vivid dreams		18
7—Depressive episodes		12
8—Palpitations or arrhythmias		9
9—Somnolence		8
10—Increase in libido (4 men—2 women)		6
11—Anorexia or loss of weight		5
12—Polyuria		4
13—Focal epileptic attacks		2
14—Hypertension		1

The only serious side effects occasionally occurring are related to postural hypotension, mental changes or abnormal involuntary movements. Postural hypotension, only seldom symptomatic, is present mainly during the initial phase of treatment. Blood pressure readings will generally return to pre-treatment levels within a few months. It should be remembered, however, that these levels are at the lower limits of normal in parkinsonian patients as a whole. The cardiovascular complications observed in our series during therapy with L-DOPA have all occurred during periods of subnormal blood pressure readings and often followed unusual physical exertion in these older patients (running, playing tennis, cutting down a tree).

Mental disturbances are of interest and can be manifested in many ways. In the majority of parkinsonians, L-DOPA has an allerting and antidepressive effect. In some patients however, the drug appears to cause severe depressive episodes which have been known in other series to lead to suicide. All of our patients with induced depression were amongst the groups classified as moderate improvement, or failures (Table 1). A number of these patients had previous evidence of personality changes characterized by dependency, introversion and lack of motivation. The more usual form of mental disturbance during L-DOPA therapy resembles a toxic psychosis and includes confusion, anxiety, insomnia, restlessness or vivid dreams (often with sexual contents). Some patients experience hallucinations. Others exhibit compulsive, stereotypic behaviour with frontal lobe overtones. "Insouciance," lack of awareness of danger, compulsive bursts of rapid speech or of physical agitation mark the more severe manifestations. The pattern is remarkably similar from patient to patient and the symptoms usually disappear rapidly with reduction of the dose. It is well known that Parkinson's disease is often characterized, mainly in akinetic patients, by a slowing of thought organization as well as of movements. L-DOPA often produces remarkable improvement in speed and facility of thought on psychological tests, but it is doubtful that it could change basic intelligence levels of the patients.

Abnormal movements are probably the most frequent, and potentially troublesome, side effect of L-DOPA. They occur at first in nearly half the patients (Table 3), but after a year or

TABLE 3
Incidence of Abnormal Involuntary Movements
Correlation with Duration of L-DOPA Treatment

Duration of Treatment	No. of Patients	Percentage
After 3 months	49/100	49%
After 6 months	49/ 80	61%
After 9 months	36/ 55	66%
After 12 months	15/ 21	72%
After 15 months	11/ 15	73%
After 18 months	8/ 10	80%

more of treatment the percentage can reach as high as 80%. Moreover, they have a tendency to occur at progressively lower doses. Most of these movements affect the oro-facial area: protrusion and rotation of the tongue, pursing of the lips, clicking sounds, grimaces, rarely (in 20% of cases) they also touch the limbs and the trunk (Table 4), and there they resemble athetosis or dystonia. These involuntary movements have been reversible by lowering the dose of L-DOPA. However they present a striking similarity to the so-called "tardive dyskinesias" seen after chronic phenothiazine therapy, or even long after cessation of these drugs. Because the tardive dyskinesias are often irreversible, one may honestly ask whether a similar situation will eventually obtain with L-DOPA. We have previously wondered about the danger of creating a new illness akin to Huntington's Chorea. Reinforcing this impression may be the observation in some of our patients with the longest consecutive treatment, of the appearance of a still unexplained hypotonia which is accompanied by more frequent falls, mainly in the patients with acquired dyskinesias and who previously had been akinetic.

TABLE 4
Involuntary Movements After L-DOPA
(40 patients with movements after 3 months of treatment)

Type	No.	% of Affected Patients	
1–Cephalic (pure)	20	50.0	
2–Cephalic+truncal	5	12.5	80%
3–Cephalic+extremities	5	12.5	
4–Cephalic+truncal+extremities	2	50.0	
5–Truncal (pure)	1	2.5	
6–Truncal+extremities	1	2.5	20%
7–Extremities (pure)	6	15.0	

c) **The problems**

As can be seen from the above, L-DOPA is presently, and by far, the treatment of choice for Parkinson's disease. However there exists a number of problems which will have to be solved before the drug may safely be used on the general market. Moreover, because of the side effects listed in this paper, it would be useful to find better approaches. The main problems are:

(1) **Cost of the drug**

At the moment this cost is prohibitive to most patients with Parkinson's disease. Mass production will undoubtedly reduce the price, but another equally useful way may be to find means of decreasing the daily amount of L-DOPA necessary, as well as the number of tablets or capsules to be consumed. This means increasing the potency of the drug, or permitting more to reach the brain.

(2) **Side effects**

The side effects of nausea and hypotension can be controlled by proper dosage control; but there still remains much research to be done to understand the mechanisms underlying mental disturbances and abnormal involuntary movements, and to counteract these.

(3) **Understanding the failures**

In most large series reported to date, the failure rate ranges between 10 and 20%. In what way are these patients different from the others? To date only two clinical correlations are apparent: the failure rate is higher amongst patients with the most severe form of the illness and with associated advanced cerebral arteriosclerosis. Even these correlations are not valid for every case! Could it be that a number of these patients are actually suffering from other illnesses mascarading as Parkinson's disease?

(4) **Why is dopamine low in Parkinson's disease?**

This, of course, is the basic question and, in our mind, it has not yet been settled. There are some authors who believe that not only the neurological symptoms, but the disease itself, are due to damage within the nigro-striatal system. If we agree on the first part of this conclusion, we strongly differ as regards the second. The evidence obtained with labelled dopamine[13, 14] indicates clearly that there is a *generalized* defect in the metabolism, or turnover rate, of this amine.[15] If this is so, what causes this generalized defect? What is the role of the increased reserve in mobilizable iron recorded in Parkinson's disease?[16]

These questions, and many others, must be answered, but already a few promising approaches are being studied.

THE FUTURE

The only way for the medical scientist to contribute to a reduction in the cost of L-DOPA treatment is to discover ways of reducing the amount necessary for effective, and sustained correction of the symptoms.

The first of these approaches involves the use of peripheral DOPA-decarboxylase inhibitors, such as Ro 4-4602 (Roche) or MK-485, (Merk, Sharpe & Dohme). By reducing the amount of DOPA metabolized at the periphery such compounds permit a greater concentration to reach the brain and there to be transformed into dopamine.[17] At low doses the inhibitors do not ap-

preciably block central DOPA-decarboxylase. The results obtained with the combination of Ro 4-4602 and DOPA have proved encouraging.[18,19,20] Our own results are summarized in Table 5. It is seen that they are essentially similar to those observed with L-DOPA alone (see Table 1). The main difference, of course, has been the lower dose of DOPA necessary. With the combination treatment our average daily dose of L-DOPA has been 800 mg (with 200 mg Ro 4-4602). Peripheral side effects, such as nausea, have been much less frequent. However the incidence of abnormal involuntary movements is about the same as before. Overdosage will rapidly result in severe choreo-athetosis or dystonia. If this drug proves to be non-toxic on the long run, it will become an important addition to therapy.

TABLE 5
Results of Combined L-DOPA Therapy
(Ro 4-4602 plus L-DOPA) in Parkinson's Disease
(first 20 patients treated for a minimum of 2 months)

Objective Range of Functional Improvement		No. of Cases	Percent
80-100%	(Very good)	9	45
50- 79%	(Good)	6	30
20- 49%	(Moderate)	4	20
0- 19%	(Poor)	1	5

Another approach which we are presently investigating in our laboratory involves the use of pancreatic enzymes to permit more penetration into the brain. Chymotrypsin has been shown to have this property with penicillin.[21] Similarly D.M.S.O. should be studied as a possible means of breaking down the blood-brain barrier.

Other compounds such as amantadine have recently been shown to have anti-parkinson properties[22] and their adjunction to L-DOPA may prove useful. At any rate, their introduction has opened a line of research into a new class of compounds.

Finally there is promise in the possibility of using analogues of DOPA and dopamine. The first of these, Apomorphine has already received a short clinical trial,[23] but unfortunately it causes severe nausea and is addictive. Similarly L-Amphetamines deserve a trial in Parkinson's diseas in view of their recently demonstrated mechanism of action.[24]

CONCLUSION

The past has been very difficult for the victim of Parkinson's disease; the present is good and the future is much brighter.

ACKNOWLEDGEMENTS

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THE EFFECTS OF L-DOPA THERAPY IN PARKINSON'S DISEASE

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By 1968 considerable information had been published concerning the use of dopa in the treatment of Parkinsonism. It appeared to be an effective medication, but there were reports of several serious adverse effects of the drug which might imperil its wide clinical application. A pharmacological review[1] by the Food and Drug Administration considered levodopa potentially dangerous, primarily because of reports of granulocytopenia, Meniere's syndrome, dizziness, tinnitus, nausea, vomiting, and asthenia.

Cotzias[2] had previously reported that in his experience with the D-L form of dopa, granulocytopenia had occurred several times. He also reported nausea, vomiting, and faintness. Some Parkinsonian patients had involuntary movements associated with therapeutic doses of the medicine. In some cases the urine became black upon standing, presumably secondary to metabolic by-products of levodopa.

Yahr[3] observed episodes of cardiac dysrhythmia, including tachycardia, premature ventricular contractions, and auricular fibrillation in his patients. He also noted psychic manifestations including toxic delirium, hallucinations, and agitation. One of his patients developed lupus erythematosus and several experienced a change in the facial expression, with widening of the palpebral fissures, lid lag, and dilated pupils which he described as a pseudo-hyperthyroidism.

In view of the reported adverse effects of levodopa and the uncertainty in regard to its clinical usefulness, a study was undertaken at the Barrow Neurological Institute to further evaluate these problems. The great bulk of the patients who participated in the study came from Arizona. Therefore, it seems only appropriate that our first report on this study be presented to Arizona physicians.

It is now apparent that levodopa will receive Food and Drug Administration approval for public use this summer. Initially the drug will be available only through the pharmacies of selected hospitals in neurologic centers and will include three hospitals in Phoenix: St. Joseph's Hospital and Medical Center, Good Samaritan Hospital, and Veterans Administration Hospital. As soon as sufficient production of the drug is achieved, it will become available to pharmacies throughout the state. Therefore, in a few months all physicians in the state will be able to use this medication. It is hoped that the information on the effects of levodopa presented at this time will be of use to Arizona physicians in this regard.

Methods

The study was designed to treat patients without admission to the hospital insofar as possible. They were initially seen at three week intervals; later, as the number of patients grew and the relative safety of the drug became more apparent, patients were seen at one to three month intervals.

During the first fourteen months of the study, 229 patients were evaluated and treated. Reportable data are available on 154 patients. The reportable group consists of 91 males (59%) and 63 females (41%). The age distribution is demonstrated in Figure 1. The average period of follow-up for the entire group is 6.2 months, the minimum being three months (twelve patients in this category).

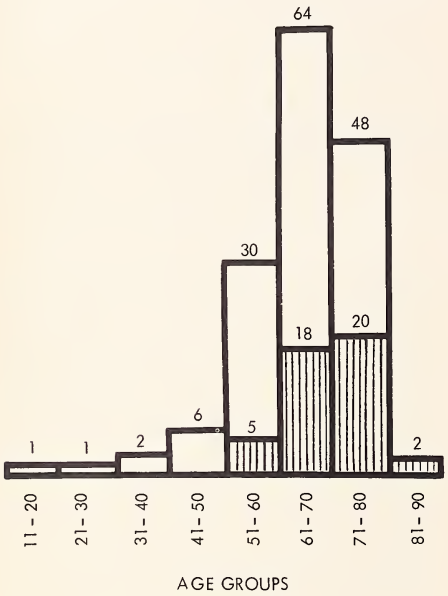


FIGURE 1

Age distribution bar graph. Shaded portion of each bar represents the number in each decade who dropped out of the study because of gastrointestinal complaints.

The patients were carefully observed clinically, but no attempt was made to do a double blind study. Treatment was initiated with 500 mgm. of levodopa per day, either after the noon or evening meal. The medication was increased weekly by increments of 500 mgm. until a satisfactory response or prohibiting side effects were obtained. When the dose exceeded three capsules per day, the patient was allowed to take two per dose if tolerated. Otherwise each capsule was taken separately at intervals of one to two hours.

Most of the patients were treated in this manner, but early in the study patients were advanced considerably more rapidly over a period of four to six weeks. Because of side effects, some patients were advanced to therapeutic doses over a period of as much as twelve weeks. The overall average dose of levodopa for those patients receiving benefit was 3.4 gms. per day, the range being between 2 and 7 gms. per day. Four women weighing about 100 pounds each have all done well on 2.5 gms. daily.

All patients had previously been treated with standard medications for Parkinsonism. After two months of treatment with levodopa, they were all advised to discontinue standard medications. However, it soon became apparent that many patients required standard anticholinergic drugs in order to control tremor. Therefore, fifty-four patients were allowed to continue previously prescribed standard medication (i.e., trihexyphenidyl). Generally speaking, doses of standard medications could be considerably reduced.

Seventeen patients had been previously treated unsuccessfully with amantadine hydrochloride. Fifty-two patients were given a trial on amantadine hydrochloride during treatment with levodopa. It benefited the tremor in five of these and was discontinued in the remainder. (Eighteen patients were treated with amantadine alone, primarily for tremor, and were not included in the total of 154 patients).

Results

Benefits

Eleven severly affected patients (7.1%) experienced remarkable recovery, becoming ambulatory and self-sufficient after being bedridden. All of them tolerated the medication well. Ninety patients (58%) showed mild to moderate improvement, although thirteen of this group eventually dropped out of the study because of adverse effects. Thus, 88 patients (57%) experienced some degree of prolonged benefit from medication. Five additional patients remained on treatment without significant benefit or disabling adverse effects at the time of the report.

Nausea

The most serious adverse effects of levodopa therapy were anorexia, nausea, vomiting, asthenia, and weight loss. A total of 106 patients (69%) had difficulty with nausea (worse in morning), with or without vomiting, and this was of serious proportions in 78 patients (51%). a total of 45 patients (29%) dropped out of the study because of these symptoms. Patients with

these symptoms would lose considerable weight, ranging between five and twenty pounds, and occasionally more. In some patients, anorexia and asthenia with associated weight loss was a more prominent complaint than actual nausea or vomiting. Some patients without other symptoms complained of a foul taste in the mouth which was unbearable. A few patients could not even tolerate 250 mgm. doses.

Patients with these difficulties were treated in a variety of ways. All were instructed to take one ounce of a liquid antacid with each dose of medication and to always take the medication after meals. In addition, patients were treated with tranquilizers, antihistamines, and even phenothiazines in an attempt to help them tolerate the medication. Some were hospitalized and treated with very small doses. These methods were only occasionally successful. A number of these patients were receiving benefit from the medication but elected to discontinue it because the improvement in Parkinsonism was not sufficient to warrant the continued discomforts (and expense of the medication).

Involuntary Movements

Movement disorders occurred in forty patients (26%) to some degree and affected twenty-nine (19%) seriously. However, only two patients dropped out of the study because of involuntary movements. The involuntary movements were of many different types but usually were choreic or athetoid movements involving the face, lips, jaw (teeth grinding), head and neck, and the extremities. The most common movement was a slow or rapid head nodding or bobbing motion. In the extremities it took the form of a choreoathetosis that would maximally affect the extremities which were formerly rigid and frequently would involve only one side in those patients having unilateral Parkinsonism. On one occasion a patient manifested movements which in every respect resembled those of Huntington's chorea.

Hypotension

Ninety patients (58%) experienced a drop in blood pressure averaging 26 mm. of mercury systolic and 10 mm. of mercury diastolic. Most of these patients complained of transient dizziness or transient faintness when changing from a sitting to an erect posture. Surprisingly, only five patients experienced actual syncope. A sixth patient with frequent episodes of unconsciousness was thought to have syncope initially. The syncopal attacks continued when levodopa was withdrawn, and it was later learned that the patient was having convulsions. The convulsions were controlled with diphenylhydantoin and did not recur when levodopa was started again. Hypotension was controlled either with ephedrine sulfate orally or elastic stockings. After several months of continuous medication, these symptoms spontaneously remitted and did not require continued therapy.

Cardiovascular System

Cardiovascular problems were rare. One patient correlated recurrent angina with levodopa in excess of 2 gms. daily. In one patient congestive heart failure and atrial fibrillation developed in association with severe nausea and vomiting during treatment. One patient had sporadic episodes of palpitation associated with faintness. No cases of arrhythmia related to levodopa therapy were documented. There were no known cases of embolic phenomena. None of our patients became hypertensive. In none did lupus erythematosus or hypertension develop.

Psychic Manifestations

Hallucinations developed in two of our patients and medication was withdrawn. One patient reported frequent vivid nightmares. Two others had severe anxiety which did not appear to be related to any other cause than the medication. None of them became delirious or confused. Many patients became apprehensive but this was attributed in part to other side effects such as nausea and involuntary movement. This symptom was controlled with mild sedatives (i.e., meprobamate).

A number of patients became depressed during treatment, but in no case was this attributed to the medication alone. In every instance the patients had a history of depression prior to starting levodopa. Two patients who became severely depressed during therapy were given shock treatment with improvement and continued levodopa therapy with sustained satisfactory benefit.

As a group, Parkinsonian patients are difficult. They are often mildly demented, obsessive-compulsive, slightly paranoid, and poorly motivated. These characteristics increase with the age of the patient. It has been difficult for the authors to distinguish the psychic effects of levodopa from the natural course of events in this illness.

Physical Changes

Routine physical examinations revealed that

the liver edge became palpable in four patients during therapy and later receded. Liver function tests were normal, and there was no explanation for this transient enlargement of the liver. Weight loss was often apparent in patients complaining of severe nausea, vomiting, and anorexia. No other consistent physical abnormalities were found.

Laboratory

Routine laboratory studies consisted of complete blood count, urinalysis, and screening determinations of blood calcium, inorganic phosphorus, glucose, blood urea nitrogen, uric acid, cholesterol, total protein, albumin, total bilirubin, alkaline phosphatase, lactic dehydrogenase, and serum glutamic oxaloacetic acid.

Nine patients had a transient leukopenia below 4,000, with the lowest being 2,900. Each patient had only one low count in each series and it occurred at variable periods after starting treatment, but usually within the first two months. Eight patients had urinary tract infections, one of which was a hemorrhagic cystitis. All cleared with appropriate therapy and did not prevent continued treatment with levodopa.

Blood urea nitrogen was elevated from 25 to 45 mgm. % (nomal 10-20) in seventeen patients but did not remain elevated with adequate hydration and continued treatment with levodopa. SGOT was transiently elevated in four patients. In one of these LDH was also markedly elevated and the patient was dropped from the study because of severe nausea and vomiting. Alkaline phosphatase was elevated twofold on three separate occasions in another patient with severe nausea and vomiting who dropped out of the study. It is of interest that uric acid was reported to be above 8.5 mgm. % (normal 2.5-8) in fifty-three patients (34%). This has been shown to be related to metabolic products of levodopa which interfere with the reaction of the reagents in the routine screening test and does not reflect an actual increase in uric acid.[4]

Deaths

There have been six deaths in the patient group while the patients were taking levodopa. Two deaths were sudden and not fully explained, even after autopsy. The first death was in a 16 year old girl who had presumed post-encephalitic Parkinsonism. She was severely debilitated with gastric atonia and was receiving nutrition by way of a subclavian venous catheter. Autopsy revealed mild pneumonia but no other cause of death. The second patient with sudden death was a 63 year old man who had had Parkinsonism for nine years and was one of the few patients with a history of blepherospasm prior to the institution of levodopa therapy. He was treated with levodopa for five months and reached a total dose of 2 gms. per day with many side effects and very little improvement. Medication was discontinued. Three days later he was found dead on his veranda. Autopsy revealed marked pulmonary congestion and edema bilaterally with aspiration of gastric contents, visceral congestion, generalized mild atherosclerosis, and questionable inflammatory changes of the spleen and liver. The cause of death remained uncertain.

Three additional patients died of intercurrent pneumonia while on treatment. One of the patients acquired influenza during the December, 1968 epidemic, followed by fatal pneumonia. The second patient, who had been severely debilitated for years and was bedridden at the age of 76, died of pneumonia. The third was a man with chronic pulmonary fibrosis who had had many episodes of pneumonia and had successful treatment of pneumonia twice while on treatment with levodopa. On the third occasion septicemia developed, and he died suddenly. He had had a poor response to levodopa therapy.

The sixth patient, a 69 year old man, had had a long history of depression which initially improved with levodopa therapy. Later he regressed, becoming severely depressed again, and was treated with shock treatment as well as medication with only moderate improvement. He returned to his home and fell down a well. He was presumed to have died accidentally, although the possibility of suicide was considered.

Discussion

The data presented here are in many ways similar to those previously reported. However, there are certain important differences. Although other investigators have found a high proportion of gastrointestinal symptoms, these complications in our series have been of severe proportions. As can be observed from Figure 1, the percentage of patients having disabling gastrointestinal symptoms rose abruptly with the age group of the patient. In the sixth decade, only 17% of the patients dropped out of the study because of gastrointestinal symptoms. In the seventh decade the figure was 28%, in the eighth decade 42%. As stated previously, many methods

were attempted to help these patients tolerate the drug.

Yahr[3] reported only three dropouts out of thirty-eight patients because of gastrointestinal symptoms, although thirty-five patients reported nausea. Cotzias[6] in 1969 reported similarly good results on 28 patients.

The cause for our high rate of complications is not immediately apparent. It is not related to excessive dosage, inasmuch as our average dose was 3.4 gms. per day, which is less than the average dose reported by other investigators. It is possible that we had an older age group. The relation between disabling nausea and age is apparent from Figure 1. However, this data cannot be compared to that of other groups since the age specifications are not available.

Treatment in our series was started with 500 mgm. doses which were gradually increased over a period of a number of weeks. Even when the increasing dosage to therapeutic levels was extended over a period of three months, some patients failed to tolerate the medicine. Similarly, even though some patients could tolerate doses of 250 mgm. in a hospital situation, they could never be successfully raised to therapeutic doses. Many of the patients had some benefit but would state simply that the amount of benefit was not worth the discomfort they experienced.

On the other hand, all other adverse effects of levodopa have been relatively mild in our series. The reasons for this are not immediately apparent. To be sure, involuntary movements represented a definite problem, but they were dose dependent and could be controlled in large measure by reducing the patient's daily intake of levodopa or by intermittently stopping it for one or two days. Barbeau[5] reports a detailed account of the types of involuntary movement which he observed in his group of patients.

The most common involuntary movement in our group of patients were wave-like or bobbing motions of the head and neck and choreoathetoid movements of the extremities which were worse in the extremities most affected by rigidity. A variety of other involuntary movements were observed. Various types of facial and orobuccolingual movements were noted. Other observations included blepherospasm, yawning, chewing movements of the mandible with teeth grinding, dystonias such as a facial grimace with retraction of the lips and mouth, and opisthotonic posturing of the neck.

Some of our patients experienced a body movement which assumed a rocking motion or a "swaying in the breeze" movement as noted by Barbeau, and some patients developed a restless appearance secondary to generalized chorea. Movements in the extremities were usually choreoathetoid in nature and occasionally there were rapid jerking movements or rapid tremor of the fingers and hands. A number of patients experienced increased frequency of cramping or flexion dystonia in the feet, and occasionally in other muscles of the extremities.

Cardiovascular problems were emphasized by both Yahr and Barbeau. Our patients experienced very few problems which could be attributed to levodopa except for episodes of chest pain or cardiac failure possibly associated with hypotension and dehydration secondary to nausea and vomiting. None of our patients experienced pulmonary or cerebral embolization, which was a prominent complication observed by Barbeau.

Similarly, psychic manifestations were emphasized by both Yahr and Barbeau. Most of our patients experienced improvement of intellect and alertness. This effect may have been in part due to levodopa and in part due to reduction or discontinuation of anticholinergic preparations. A few of our patients became agitated and two developed hallucinations.

Only one of our patients reported nightmares as the only psychic manifestation. A number of our patients experienced transient insomnia, but a number also experienced sedation associated with levodopa. No particular trend was noted. Some patients became depressed during treatment. This may have been in part secondary to dopa therapy, but we are not sure of the relationship since so many Parkinsonian patients become depressed during the course of this illness.

Unfortunately, none of our patients have experienced any increased libido, and in fact, many patients complained of decreased libido. A number of patients were able to resume normal sexual activity but did not feel that it was any different from their activity prior to developing severe Parkinsonism.

Little comment need be made about hemotologic, hepatic, and renal toxicity. No serious problems have been found in this regard.

It is difficult to know what emphasis to place upon the deaths occurring in our group of patients. Of particular concern is the sudden death in the man who had discontinued levodopa three

days previously. It is possible that he had a severe arrhythmia and cardiac arrest. If so, can the arrhythmia be attributed to the drug which had been discontinued? His autopsy study remains incomplete and will be reported in detail later.

It would appear that levodopa is the most effective drug in the treatment of Parkinsonism at this time but is associated with troubling adverse effects, which are primarily either gastrointestinal or involuntary movement in nature. Our experience with the drug otherwise has been quite benign and at this point would appear to be a relatively safe medication in terms of organ toxicity.

SUMMARY

A study was undertaken to evaluate the adverse effects of levodopa. Reportable data are available on 154 patients. The most serious of these effects were anorexia, nausea, vomiting, asthenia, and weight loss. Twenty-nine per cent of patients dropped out of the study because of these symptoms. Involuntary movements were also a problem but could usually be prevented by adjustment of dosage. Fifty-eight per cent of patients experienced some degree of hypotension, but only five experienced syncope. Other adverse effects on the cardiovascular system were rare. Two patients developed hallucinations. Other possible psychic manifestations included agitation and depression. Only transient leukopenia was noted in nine patients. Transient abnormalities in blood chemistries were noted as follows: BUN, 17 patients; SGOT, 4 patients; LDH, 1 patient; alkaline phosphatase, 1 patient. There were six deaths among the patient group. The relationship of levodopa to their death is questionable.

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In recent years the mechanisms of angina pectoris have been clarified by hemodynamic studies in man. These investigations, as well as measurements of the effect of nitroglycerin and other agents to relieve or prevent attacks of angina, have increased our understanding of this condition and have permitted a rational approach to the symptomatic treatment of this entity.

Heberden's description of angina pectoris nearly 200 years ago remains classic.[1] In 1768, he wrote:

"But there is a disorder of the breast marked with strong and peculiar symptoms, considerable for the kind of danger belonging to it, and not extremely rare, which deserves to be mentioned more at length. The seat of it, and sense of strangling, and anxiety with which it is attended, may make it not improperly be called angina pectoris.

"They who are afflicted with it, are seized while they are walking, (more especially if it be up hill, and soon after eating) with a painful and most disagreeable sensation in the breast, which seems as if it would extinguish life, if it were to increase or continue; but the moment they stand still, all this uneasiness vanishes.

"In all other respects, the patients are, at the beginning of the disorder, perfectly well, and in particular have no shortness of breath, from which it is totally different. The pain is sometimes situated in the upper part, sometimes in the middle, sometimes at the bottom of the os sterni, and often more inclined to the left than

AN UNDERSTANDING OF ANGINA PECTORIS

to the right side. It likewise very frequently extends from the breast to the middle of the left arm. The pulse is, at least sometimes, not disturbed by this pain, as I have had opportunities of observing by feeling the pulse during the paroxysm. Males are most liable to that disease, especially such as have passed their fiftieth year."

Heberden's observation that angina may occur with little change in the heart rate has been verified.[2, 3] However, an elevation of blood pressure usually precedes the onset of this symptom.[2, 3] At the time of angina, a third heart sound (ventricular diastolic gallop) and often a fourth heart sound (atrial diastolic gallop) can be heard.[4] The presence of a ventricular diastolic gallop indicates cardiac failure, and the onset of left ventricular failure with angina has usually been documented during cardiac catheterization.[5, 6] Evidence for cardiac anoxia has been obtained by the finding of excess lactic acid in coronary sinus blood.

Angina pectoris occurs when there is an increased myocardial need but insufficient supply of oxygen from coronary arterial blood. The most important determinants of myocardial oxygen need or consumption are heart rate and systemic arterial blood pressure. Other factors that are directly related to the rate of utilization of oxygen by the heart are the size of the heart, ventricular wall thickness, and the rate of ejection of blood from the ventricles. The latter factor is important during exercise.

Angina may be relieved or prevented either by increasing the supply of oxygen to the heart or by reducing the utilization of oxygen by the heart. Surgical approaches designed to increase the supply of oxygen to the heart in patients with angina due to coronary atherosclerosis are severely hindered by the fact that most patients with angina pectoris have coronary artery disease with multiple diffuse coronary narrowing.[7] Presently there is no means of proven efficacy, either medical or surgical, that can reverse this process. Surgical techniques designed to cause myocardial revascularization are still in the experimental stage.[8] Thus, the best we can offer patients with angina pectoris is symptomatic therapy.

For years it has been thought that nitroglycerin, a vasodilator, relieved angina by causing increased coronary blood flow. Until recently, measurements of coronary blood flow following sublingual nitroglycerin have consistently failed to show an increase in coronary blood flow in patients with coronary artery disease.[9, 10, 11] However, this inability to document an increase in coronary blood flow may be methodologic. If measurements are made within the first two minutes after sublingual administration of nitroglycerin, an increase in coronary blood flow has been found to be present.[12, 13] It is also possible that nitroglycerin may alter myocardial distribution of blood to the ischemic areas of the heart.[14] Another mechanism of action of nitroglycerin appears to be a reduction in myocardial work, and therefore a decrease in myocardial oxygen consumption.[15, 16, 17] Blood pressure is de-

creased, due to the vasodilating effect of this drug. It also dilates venous vessels and venous return is decreased. Thus, ventricular volume is less and evidence of heart failure diminishes. There is now evidence to substantiate the hypothesis proposed by Brunton in 1867 that part of the mechanism of action of the nitrites in relieving angina pectoris is by decreasing cardiac effort.[18]

There is considerable doubt about the efficacy of the so-called long-acting nitrites in the prophylactic treatment of angina pectoris. A recent critical review of most of the drugs in this category has concluded that proof of efficacy of these agents is lacking.[19] It cannot be said unequivocally that the long-acting nitrites are ineffective. Nevertheless, they appear to contribute minimally to the therapy of angina pectoris. This statement does not necessarily apply to nitrite preparations designed for sublingual administration.

Propranolol, a beta adrenergic blocking agent, is being used extensively to reduce the number of attacks of angina pectoris.[20] It appears to be effective in many patients without overt heart failure, although double-blind evaluation has been hampered by the striking bradycardia accompanying its use. It is of interest that propranolol does not increase coronary blood flow in normals or in patients with coronary artery disease. It decreases resting heart rate and the rate response to exercise.[21] It also diminishes blood pressure elevation with exercise, in addition to decreasing the velocity of ejection. All of these effects act to conserve myocardial oxygen supply. Thus, the patient can perform the same or more external work with relatively less myocardial oxygen consumption. However, propranolol does increase the size of the heart, both in normals and in patients with heart disease, and it blocks the "contractile" response of the heart.[20] Patients with incipient heart failure may develop overt congestive failure, and propranolol may exacerbate heart failure in patients in whom this complication has been recognized. Fortunately, digitalis, salt restriction, and, if necessary, diuretics may be used in conjunction with propranolol to treat this complication. The dose of propranolol necessary for beta blockade is 80 mg. per day, but it may be necessary to administer a total of 160 to 240 mg. in equally divided doses to prevent attacks of angina pectoris. The finding that doses of propranolol greater than that required for beta adrenergic blockage are generally needed to reduce the incidence of angina pectoris suggests that propranolol may have other actions.[22]

The general care of the patient with angina pectoris should not be overlooked. Myocardial oxygen consumption can often be effectively reduced by altering the patient's pattern of activity. It should be recalled that emotion is accompanied by an increase in heart rate and blood pressure. If the physician can decrease anxiety, fear, and emotional tension and stress, the incidence of anginal attacks may decrease strikingly.

KEYWORDS: Angina pectoris, Nitroglycerin, action of Propranolol, Angina pectoris, hemodynamic changes in

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SEXUAL PATTERNS IN LATER YEARS OF LIFE

In the movie "Guess Who's Coming to Dinner" Spencer Tracy is told that his opposition to his daughter's marriage is due to the fact that he is an older man and does not remember the passion he had when he was young. This statement summarizes the attitude that most people have regarding sex drives in the later years of life. A survey of college students at Brandeis University[1] revealed that most believed sex in old people to be "negligible," "unimportant" or "past." In general this is the way our society thinks about the old. We put emphasis upon youth and beauty and turn our backs on the old and think of them as rejects. Most people, male and female, have a fear of aging and assume that sex drives disappear with advancing years. Many men believe they have a climacteric similar to the female menopause. Our cultural pattern is to pretend that sexual activity occurs only during the first 25 or 30 years of married life. We pretend there is no sexual activity prior to marriage and that it ceases in older people. In fact we frown upon, or even ridicule, older people who marry unless it is considered on the basis of companionship and not for sexual needs.

In the above-mentioned movie Spencer Tracy strongly denied the absence of passion in his life stating that his feelings of love and desire for his wife were as strong as in past years. Victor Hugo in his 80's was still having intercourse at regular intervals. Oliver Wendell Holmes at 94 expressed the wish that he could be 70 again to enjoy the pleasures of sex. Pablo Picasso in his mid-80's still shows considerable interest in sexual activity.

The aging process produces three forms of stress — physical, cultural and emotional. The physical changes associated with aging are apparent. The skin dries, vision and hearing become impaired, the hair drops out, the joints begin to ache and muscular weakness gives rise to increasing fatigue. In the male the testicles become softer and the prostate enlarges. In the female the breasts sag, the vagina becomes less elastic, showing atrophic changes and diminished secretions. With the cultural stress on youth, vigor and beauty these changes bring varying degrees of anxiety to the individual. The menopause indicates to the female that she can no longer have children, that youth and beauty are passing and she may be less attractive. For the male the decrease or absence of morning erections and diminished sexual interest brings increasing anxiety about his virility. The aches and pains of advancing years or actual physical disease leave less energy or desire for sexual involvement. In such cases, the spouse who may still be healthy, recognizing the mate's infirmities, makes progressively fewer sexual demands.

Aging brings a crisis of identity. Adolescence is recognized as a turbulent period for the child establishing his identity as an adult. It has not

been recognized that the aging process involves equal turbulence when the individual with an established adult personality is forced by retirement or loss of marital partner to develop a new identity and mode of life. While 65 is still the common retirement age more and more men find themselves "locked in" on their jobs at much earlier ages. The middle-aged man too often finds that the world considers him an old person. He knows that he has gone as far as he can on his job and begins to worry what to do if he should lose his job. For many their work status contributes in large degree to their sense of identity. Enforced retirement when he still feels able to work productively deprives a man of an essential prop to his dignity. Some may then seek reassurance in extra-marital affairs; others react to retirement by depression, anxiety attacks, feelings of persecution or excessive drinking.

Women find their life pattern in the years following menopause a source of increasing concern. Their role as homemaker is disrupted when the children leave home and later by the loss of spouse. Generally the husband dies first forcing the female to reevaluate her role as a widow and to develop a new identity. Depression or anxiety may arise when she feels no longer important or with the loss of the husband's presence and support.

Both men and women react to these changes of role with greater or lesser emotional upset. Often they tend to adopt the stereotype which society has molded for them in all forms of behavior, particularly sexual conduct. Society requires that aging persons, particularly the widowed woman, should appear to be or actually be sexless. The aging individual who attempts to adopt this role does so at great emotional expense. An unpublished study of 600 persons aged 60 or more at Langley Porter Neuropsychiartic Institute in San Francisco showed that most had feelings of shame or guilt about their sexual drives, believing them to be wrong.[2] Only 20% believed that their sexual drive was normal and worthwhile.

The studies of Masters and Johnson[3] demonstrated that while sexual responsiveness diminishes in the male after the age of 60, those men in good physical health with a healthy attitude regarding the aging process are capable of a satisfying sexual life well beyond the age of 80. They found that there is no time limit for sexual responsiveness in the female despite her age. The aging female who has developed orgasmic response in the past is perfectly capable of continuing if she is regularly exposed to effective sexual stimulation. Those individuals accustomed to a satisfying sexual life will continue to have sex needs, interest and ability into advanced ages, despite a gradual diminution in their sexual drive with the passage of time. After the age of 25 men have a slow gradual decrease in their sexual urges which continues throughout their lifetime. The changes do not occur precipitously; there is no point at which old age suddenly enters the picture.

The pattern of sexual behavior in adolescence mirrors the male's sexual activity in later years. At the age of 50 men who were sexually active in adolescence either through masturbation or intercourse continued at a higher frequency rate than those men who began their sexual expression at a later date. It has long been a popular belief that masturbation, particularly "excessive" masturbation, will adversely affect sexual life in later years. Evidence is to the contrary. Individuals who masturbated actively in adolescence or who resorted to masturbation in adult years when intercourse was not available continued to have a high degree of sexual interest and activity until late in life. Women who masturbated frequently during adolescence continued to do so in old age. Men and women with strong sex drives in their youth still had sexual interest in old age. Those with weak or moderate urges in youth had no sexual feelings when they were old.

Impotence is not the result of sexual excess, but is an expression of sexual fear or guilt that has been a lifetime characteristic of the individual. The male accustomed to a continuously active sexual life, whether intercourse or masturbation or both, is less likely to have impotence or sexual failure in later years. The decline of sexual activity in the aging male is primarily the result of a gradual loss of physiologic capacity. It is also influenced by psychological fatigue due to stereotyped repetition of the sexual act with the same partner in the absence of new techniques, new contacts or new situations. The monotony of a stereotyped sexual pattern repeated for many years gives rise to a feeling of boredom for both the marital partners. After 30 or more years of married life most men and women find that sex no longer stirs the excite-

ment or passion of earlier years. If a couple had a good interpersonal relationship their sexual life now brings tenderness, closeness and a sharing of experiences. However, if their sexual life has been characterized by open or concealed hostility, increasing friction and arguments will develop. The wife who has not found her sexual life satisfying may express a desire to discontinue or may become unresponsive. The husband who has felt his wife's resistance over the years may develop impotence as an unconscious device to resolve this dilemma.

Loss of interest in sex may be related to preoccupation with career or economic pursuits, fear of poor sexual performance, mental or physical fatigue, overindulgence in food or drink, physical or mental infirmities in the individual or the spouse. The most common factor causing men to lose interest in sex is monotony. This may be due to stereotyped sexual activity, the female's lack of response or her loss of personal attractiveness. When such a male is exposed to a new partner there is generally a burst of sexual activity followed after a short period by a return to the usual rate. Masters and Johnson found that impotence in the late 40's and early 50's had a high correlation to excessive use of alcohol.

The study of sexual behavior in a group of older women[4] revealed that 7/8 of married women at age 50 were still having intercourse with their husband at least once a week (69.4 times a year). By age 60, 70% were having intercourse and at age 65 half of the married women were still engaging in marital coitus. At age 50, 37% of post-marital (widowed, separated or divorced) women were having intercourse but this ceased by the age of 65. However, this post-marital group reported masturbation incidences about double those of married women. Thus at age 50 post-marital women reported that 59% still masturbated; at age 70, 25% were masturbating. Married women reported that in addition to intercourse some 25% were masturbating and 19% had spontaneous orgasm in their sleep at the age of 65. Women who had been sexually active in their earlier years continued to have a strong sexual interest until very advanced ages. Once the female had achieved the capacity for orgasm she desired to continue coitus even following the loss of male partner through divorce or death. For the married woman the husband's age was an important factor in terms of frequency and her ability to reach orgasm. Where the husband was much older there was less coitus and the female had fewer orgasms than occurred in women married to much younger husbands.

Since 1954 a longitudinal study of elderly individuals has been carried out by Duke University.[5,6] The study group were 60 or older at the inception of the project and were interviewed at regular intervals. While most men and women showed a gradual decline of sexual activity and interest with advancing age, surprisingly a significant number showed rising patterns of interest and activity. The median age for discontinuing intercourse was 68 in men and 60 in women. Men showed little sexual drive or interest after the mid-70s. While nearly all women in the study group had lost sexual interest by the early 70s, a few past the age of 78 evinced more sexual interest than any of the men.

The main reason for stopping intercourse other than death of the spouse was the man's sexual attitude. When he lost interest or ability due to physiologic reasons, illness of his spouse or himself, sexual activity ceased. The females married to a younger men had higher rates of sexual activity than those married to older men. Women who had achieved orgasmic ability in earlier years were more interested in continuing their sexual life than those women who could not reach orgasm. To a large extent the sexual activity of aging women is determined by the availability of a husband or sexual partner and his sexual capacity.

While there were many individual exceptions and variations in the Duke University study group a number of over-all patterns evolved: 1. Men, whether married or unmarried, were generally more sexually active than women until in the late 70s when married women showed a higher incidence of sexual interest. 2. About 1/5 of men in their 80s and 90s reported continued sexual activity. 3. Men in the mid-70s showed a rather sudden drop in frequency of sexual intercourse. There appeared to be some relationship to the development or exacerbation of age-related infirmities or physical illness or both.

Newman and Nichols[7] also at Duke University reported that 54% of the married individuals in their geriatric study group were still sexually active. Only 7% of those living alone reported any sexual activity. After the age of 75 there was an abrupt drop in sexual activity. Many of these individuals had chronic illnesses such as arthritis, heart disease and diabetes, or reported such ill-

ness in their spouses. While one of the married individuals still might have some strong sexual urges, poor health in the partner precluded further activity. The study indicated that elderly patients with reasonably good health and with a partner who was also healthy could continue an active sex life past the age of 90.

The attitude of the physician can be an important factor influencing sexual activity in the older person. Many physicians have a negative or discouraging attitude and tend to oppose continued sexual activity in the older patient. There is a tendency to discourage sexual activity if the patient has heart disease or other serious ailments. Too often the physician does not reassure the male undergoing a prostatectomy that he can still engage in coitus postoperatively. The woman having surgery on her breast or her genitals needs reassurance that she will be attractive and desirable even after the loss of these symbolically important organs. Because of atrophic changes in the vagina following menopause many women require hormone replacement. Following surgery on the vagina or pelvic radiation the vaginal introitus becomes smaller making intercourse painful and sometimes impossible; following vaginal surgery or radiation a course of dilatation should be carried out to permit her a continuation of her sexual life. Often whenever the older patient talks about sexual needs or indicates that masturbation continues the physician is prone to react with anger or embarrassment.

This rejecting attitude of the individual physician regarding sexuality in the older patient is mirrored in the profession generally. In 1959-1960 the American Medical Association held a series of conferences on problems of aging.[8] Approximately 250 participants drawn from the fields of medicine, sociology, rehabilitation, education, clergy and the public spoke on the many problems of the older person. While there was concern about the financial, nutritional and social adjustment problems, not one speaker referred to their sexual needs! It is hard to conceive of so many experts ignoring such an important aspect of the older individual's life. Seemingly the views of these interested individuals reflected the belief that sexual activity is non-existent in the older individual.

It is imperative for physicians to recognize the psychological importance of sexual functioning into the latest years of life. To ignore this aspect does harm to their patients' sexuality and their entire way and enjoyment of life. The older patient increasingly has the feeling of being cut off from the world. He has the need for a pat on the back or a handshake and the reassurance that he is still a worthwhile individual. Physicians must help their aging patients to overcome feelings of guilt or shame about a continuing sexual interest or activity. They must be told that their masturbation, sexual fantasies, spontaneous orgasms or any other sexual activity is definitely within the realm of normal.

Probably the most cogent observations on sexual behavior in later life were stated by Frank.[9] "Sex relations can provide a much needed and highly effective resource in the later years of life when so often men face the loss of their customary prestige and self confidence and begin to feel old, sometimes long before they have begun to age significantly. The premature cessation of sexual functioning may accelerate physiological and psychological aging, since disuse of any function usually leads to concomitant changes in other capacities. After menopause, women may find that continuation of sexual relations provides a much needed psychological reinforcement, a feeling of being needed and of being capable of receiving love and affection and renewing the intimacy they earlier found desirable and reassuring."

SUMMARY

The popular belief that sexual activity is nonexistent in the later years of life is incorrect. Men and women are capable of satisfying sex until very advanced years if they have a healthy attitude regarding the aging process and have a willing, responsive partner. In the absence of intercourse, masturbation is a common occurrence. Physicians must recognize the existence of this physiologic need and should reassure their patients who express concerns or guilt.

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Editor's Page

L-DOPA
A REMARKABLE CONTRIBUTION TO MEDICAL PRACTICE

Within the past few weeks the Federal Drug Administration has approved L-Dopa for the medical treatment of Parkinson's Disease and related disorders. This relatively effective agent presents an exciting history of neurochemical achievement.

It is worthy of note that it has taken 150 years for an effective medical treatment to be found for paralysis agitans which was originally described in 1817 by James Parkinson. We have already seen a shift in the major activity of stereotactic neurosurgery from Parkinson's Disease to other neurological disorders because of L-Dopa.

Dopa (3, 4-dihydroxyphenylalanine) was first synthesized by Casimir Funk in 1911. (It was Funk who described how yeast would cure or prevent beriberi and who suggested the term "vitamine" in 1912). The L-form of Dopa was identified by Guggenheim in 1913, following which there was unremarkable activity in this field of chemistry until Carlsson and collaborators demonstrated the depleting effect of reserpine upon catecholamines in 1956. They showed that L-Dopa can serve as a reserpine antagonist and abolish some of the extrapyramidal effects produced by this drug in 1957, the same year that Montagu identified dopamine as a component of human brain. The localization of high concentrations of dopamine in the basal ganglia by Carlsson and associates in 1958 led to the first trial of L-Dopa in humans by Degwitz and collaborators in 1960.

Two groups reported on the use of L-Dopa in Parkinson's Disease simultaneously in 1961. They were Barbeau and Associates in Montreal and Birkmayer and Hornykiewicz in Vienna. The former group utilized oral L-Dopa and noticed marked but short-lasting improvement in rigidity and tremor. The Viennese used the intravenous route and observed changes in akinesia. In 1967, Cotzias and his coworkers increased the daily dose with effective results.

Two definitive original articles are included in this issue of ARIZONA MEDICINE on L-Dopa therapy in Parkinson's Disease by neurologists, a Montrealer (Barbeau) and Phoenicians (Thompson et al). We recommend thoughtful study of their work as well as their references. It is apparent that L-Dopa is a complex medication and can be used safely and effectively only if fully understood.

John R. Green, M.D.

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President's Page



My daughter, Cindy, returned from college to present me with a book of Chinese proverbs; written beautifully, as she is taking a course in calligraphy. One was particularly impressive at this time and is as follows:

"No matter how stout . . .
one beam
Cannot support a house"

This is important as we examine the structure of ArMA and the many beams that support our house.

The entire base is, of course, the membership; without which nothing would exist, but as the membership participates the structure begins.

All committees meet one or more times between Board meetings to consider all the problems that have been presented to them. The average member of our Association does not realize how many hours of diligent effort have gone into each of these meetings, and then multiply this by the number of committees. After all committees have met, examined their areas, discussed their problems, and presented their views and solutions, this area of our structure is complete. All the reports are then put into report form and presented to the next area of consideration.

The next area is the Executive Committee, where on the Saturday before the Board meeting all the committee reports, as well as the entire agenda for the following day, are carefully considered.

In this meeting, the Executive Committee, the Executive Director, the Associate Executive Director, and our attorney pursue in detail all ramifications of Association business. So on presentation to the Board the next day, each report has been considered and can be presented in concise detail.

On Sunday the entire Board of Directors of ArMA meet with specific guests that include the Field Representative of the AMA, Executive Secretaries of County Societies, the Dean of the College of Medicine, Presidents of all County Societies, and others as the situations or problems demand.

At this meeting; your views, as have been discussed with your Directors; all committee reports presented; the report and feelings of the Executive Committee are all brought together at the discussion table and the affairs of ArMA are conducted.

This page is written so that all members of ArMA will know all the avenues open to him so his views can be heard. This is what makes the structure sound and strong, so all will know it is more than one beam that supports our house.

Fred H. Landeen, M.D.
President

Dean's Page

A PULMONARY DISEASE PROGRAM FOR ARIZONA

There is an increasing demand for specialized care of patients with chronic respiratory diseases. The demand is particularly great in Arizona where the death rate from bronchitis and emphysema is four times the national average and twice that in the next highest state, and where chronic respiratory diseases are the most important causes of adult disability. Although there are several excellent chest centers in our State, expert pulmonary disease consultations, modern diagnostic facilities, and organized respiratory care programs are not available to many patients who live in small communities.

The University of Arizona College of Medicine has undertaken a project to strengthen further the pulmonary disease services in Arizona. This project, which is funded by Regional Medical Programs, provides for training of physicians and paramedical personnel, for making consultation services available throughout the State, and for introducing new techniques to expedite and improve clinical care. The specific project is based on the following principles:

1. A large central facility, or even several large regional facilities, cannot dispense all of the respiratory disease care required in the State. Local programs must be developed and supported.

2. A new type of paramedical therapist or nurse-specialist should be trained. This individual would assume responsibilities presently delegated to a variety of nurses, therapists, and technicians.

3. Expert specialized medical care can be provided by family practitioners and internists after a brief period of special training, provided continuing consultation is available to them.

4. The delivery of specialized medical care can be expedited by the use of data processing techniques.

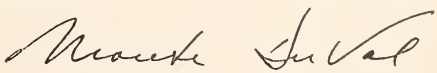
The project is being implemented on a pilot scale in southern Arizona. Tucson Medical Center is functioning as a referral hospital for five smaller hospitals. A physician from each of these local hospitals will receive special training in pulmonary diseases at the College of Medicine and at Tucson Medical Center. Training will also be provided to a nurse or technician from each of the participating institutions. These personnel will be responsible for establishing local, respiratory care programs. Generally, necessary equipment for simple lung function testing, blood gas analysis, and inhalation therapy will be obtained by the individual hospitals, but blood gas equipment will be loaned to one institution to demonstrate its usefulness.

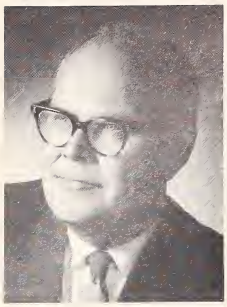
Following initial training of local personnel, Tucson Medical Center and the College of Medicine will provide teams of consultants who will visit the smaller institutions at regular intervals to consult on medical problems, review the overall respiratory care program, and assist in laboratory operations. Physicians and paramedical personnel will be encouraged to accompany patients who require referral to Tucson Medical Center or the College of Medicine in order to participate in the evaluation of such patients under the direction of a qualified chest consultant.

Also, regular refresher courses will be offered to personnel at participating hospitals on a yearly basis. Since chronic bronchitis and emphysema are major problems in most areas, treatment of acute ventilatory failure and long-term surveillance of patients with chronic respiratory insufficiency will be emphasized.

In support of the program, the Section of Pulmonary Diseases of the College of Medicine is developing a data processing service and a Dataphone communication system. This will provide automated analysis and interpretation of laboratory data and a teletype-based indirect consultation service through which qualified pulmonary disease consultants can answer questions which arise at participating institutions. The system should assure a continuing liaison between personnel at participating hospitals and the faculty of the University of Arizona College of Medicine.

In the initial months of operations of the project the specific needs of local hospitals will be identified, a consultation service organized, and automated data processing techniques developed. It is anticipated that the pilot project will be fully operational by the fall of 1970, and it is hoped that the program can be extended beyond southern Arizona within the first year of operation.





PEER REVIEW AND BLUE SHIELD

PAUL H. KOREN, M.D.

Paul H. Koren, M.D., has been appointed Medical Director of Arizona Blue Cross and Blue Shield by John C. Foster, Executive Director. A graduate of New York Medical College, Dr. Koren had a private practice in Rapid City, South Dakota for 18 years and then became Director of Medical Services for the Department of Welfare for that state. He was also Administrator of South Dakota's Title 19 program since its inception. Dr. and Mrs. Koren are now living in Scottsdale.

Peer review is not new. Since World War II it has existed in many forms in clinics, partnerships, panel plans and hospitals. It's just that it has never become widespread.

Today's health coverage that is sold to important national and regional groups for thousands of employees in dozens of states has brought demands from these employers for uniform application of benefits and the correct and prudent use of their company's and their employees' health care dollar. Under-use and limited breadth of coverage is as deplorable to the employer as is over-use. He is under pressure from his organized employees to help provide health care coverage in which *all* parties concerned can have confidence regarding its correct price and correct utilization. If the private sector and the health professions, to whom the employees and their unions still cling, are to provide the desired alternative to the rigidity of a governmental scheme, they must earn the confidence of the consumers by displaying their real concern for all to see.

The medical profession has long proclaimed its support of quality controls in hospitals by its partnership with the Joint Committee on the Accreditation of Hospitals. The regulations and criteria developed for quality of care in an accredited hospital have been a source of pride for the medical staff and administration alike. The organization of the medical staff and committee structure have permitted on-going vigilance of the care rendered patients by its members. The whole process has inevitably raised the quality and standards to an all-time high. An important by-product to the profession has been the *educational* value of peer review and self-analysis.

However, just as the quality of care in hospitals fifteen years ago needed attention and improvement, the *full* scope of care outside the hospital begs attention nowadays, because third-party payments have spread to that area too. The same employers, who could not buy any coverage but the most critical and acute kind in the past, can and do purchase diagnostic, preventive and incidental care patterns nowadays. Indeed, much of this extra-hospital coverage was explored by the medically-oriented third party Blue Plans at the behest of the medical profession. Commercial carriers were reticent to experiment for the same reasons they hesitated about "in-hospital care" thirty years ago, i.e. the lack of statistics for forecastibility and controls. When non-profit Blue Cross blazed the trail, the commercial carriers were not far behind. When Blue Shield, guided by the medical profession, ventured into extra-hospital coverage, the commercials dipped their toes into it too. These are historical facts, and the profession can be justifiably proud of its socio-economic contribution to the needs of the nation's employers and employees.

It is therefore a logical sequence that the same profession take the next step and instigate the mechanisms for quality control of the *full* spectrum of health care coverage as purchased by the consumers of today. The same leadership that saw the need and answered it for the nation's business community years ago can surely not abdicate its role in providing vigilance over the widened area of coverage into which it persuaded the private sector to venture. It can't and won't.

The Board of Directors of the National Association of Blue Shield Plans, made up of 21 physicians, has passed a new public policy and membership standard for Blue Shield Plans across the nation. It reads as follows: "A Plan shall submit evidence that its practices provide for utilization review and control designed to safeguard the interest of all persons served by the Plan. Criteria for measuring the effectiveness of a Plan's utilization review program shall be established by the Board of Directors."

The first sentence tells the nation that the Blue Plans are concerned about the consumers. The second sentence says they *mean* peer review to be effective. Keeping mind the aforementioned "desired alternative" to a "governmental scheme" for the nation's employees, this is the golden opportunity for the profession to earn the confidence of the consumer so he will not turn to his government for financing his health care. Simply by re-kindling the same spirit that brought about the reforms in hospital care, for which the profession can take credit, the same profession can take another "giant step" here on earth.

Although the subject is not new, and the N.A.B.S.P. standard was passed last summer, there are definite parallels in this project with the "Foundation" plan endorsed by Maricopa County Medical Society last December. Peer review and professional vigilance of utilization are among the same standards that *any* good product offered to the public must contain.

The fact that the state's most populous county's Medical Society has proposed to offer the public a plan that would be that organization's *own*, patterned after the 15-year old San Joaquin plan, is proof enough that at least a large segment of organized medicine in Arizona is ready, willing and able to step forward and be counted in an effort to provide the "desired alternative." This speaks well for and dovetails with Blue Shield's new standards. They couldn't be more compatible!

The details and mechanics of peer review in Arizona Blue Shield are now being formulated. The Board of Directors will announce them shortly through newsletters, staff meetings and county society meetings. The modus operandi will, of course, involve me as Blue Shield's full-time Medical Director, and the 15-physician Medical Review Committee, elected by ArMA's House of Delegates. Hopefully, it will also involve other portions of organized medicine, such as specialty groups.

Our Public Relations Department will see to it that the general public knows what the profession is doing in a *positive* way to safeguard all concerned, and much can be gained by publicizing the profession's own vigilance. The *opportunity* is here. We look forward to serving the profession and the public.

THE PACIFIC SOUTHWEST REGIONAL MEDICAL LIBRARY AND MEDLARS SERVICE

LOUISE DARLING, DIRECTOR
PACIFIC SOUTHWEST REGIONAL
MEDICAL LIBRARY SERVICE
UNIVERSITY OF CALIFORNIA CENTER FOR THE
HEALTH SCIENCES, LOS ANGELES

The Arizona Medical Library Network (AMLN) was reported in the June issue of ARIZONA MEDICINE as a service to Arizona health practitioners. The Pacific Southwest Regional Medical Library & Medlars Service is a separate service for practitioners not only in Arizona, but also in California, Hawaii, and Nevada. Requests for services that cannot be supplied by the AMLN will be automatically forwarded to the Regional Medical Library Service.

On September 1, 1969 the Pacific Southwest Regional Medical Library Service. (PSRMLS), centered at the UCLA Biomedical Library, initiated services for health science institutions and individuals in four states. A part of the nationwide Biomedical Communications Network sponsored by the National Library of Medicine, PSRMLS functions as an intermediate link between NLM and local medical libraries in Arizona, California, Hawaii and Nevada. It is the seventh regional medical library to become operational in a projected group of eleven. Policies are formulated by an eighteen-member Advisory Committee drawn from the health professions, schools of the health sciences, health science librarians, and Regional Medical Programs personnel. Arizona representatives are Dr. Boyden L. Crouch of Phoenix, and Mr. David Bishop of the University of Arizona College of Medicine Library.

PSRMLS has been established to give health professionals ready access to information services. For example, a surgeon in Phoenix needing a specific article on congenital heart defects reports the journal is not available in his hospital library or in the larger medical libraries of Arizona. The surgeon's librarian forwards the request to UCLA by teletype, telephone, telegram, or mail, depending on the urgency and the facilities available at his end. The article is photocopied and sent by return mail to the surgeon's office. If for some reason the request could not be filled, UCLA would immediately notify the surgeon's librarian and send his request on by teletype to the National Library of Medicine.

In its initial year, PSRMLS provides for loan of books and, in the case of journal articles, for single cost-free copies in lieu of original material, plus reference, referral and bibliographic service. The UCLA MEDLARS Search Station has been incorporated in PSRMLS and continues the formulation of bibliographies for computer search through the National Library of Medicine's Medical Literature Analysis and Retrieval System. For Arizona, continuing library education and consulting services will be offered in cooperation with a planned Arizona Medical Library Network and the Medical Library Group of Arizona. Plans include workshops for medical librarians and health professionals on new technical developments in the information field and new services for users. An example of the latter are the two half-day MEDLARS User Conferences presented in Tucson at the College of Medicine last November. Others on this subject are scheduled for various parts of the state later, but in the meanwhile, PSRMLS hopes that the following brief account will provide enough information for those who are not already acquainted with the MEDLARS Demand Search Service to use it to advantage.*

MEDLARS has become a familiar term among

*This account is a revision of an article previously published in The Bulletin of the Los Angeles County Medical Association, 98:29-30, August 1968.

users of medical literature in the years since the National Library of Medicine's pioneering effort with the first large scale computerized retrieval and publication system became operational in January 1964. User experience with the services offered by the system, however, is still limited in good part to the *Index Medicus* and other printed products derived from the MEDLARS data base, although the National Library of Medicine and the decentralized search centers it presently sponsors processed 7,673 demand search requests in 1967/68. (1,499 or 19 percent of this total were formulated at the PSRMLS center).

A demand search is a request by an individual user for citations on a specific biomedical subject indexed in the MEDLARS computer store. This store now contains over one million citations published from 1964 to date and is increasing at the rate of close to 200,000 citations a year. The citations are to papers in the approximately 2,300 journals indexed for MEDLARS at the National Library of Medicine. The articles are described by an average of eight terms of which generally three convey major concepts and are used as subject headings in the printed *Index Medicus*.

To examine the papers cited in the MEDLARS bibliography, the requester must use the resources of his local library, or interlibrary loan service for what is not available there. PSRMLS, through the Biomedical Library at UCLA, receives over 85 percent of the titles indexed in the MEDLARS store and, because the 85 percent received includes the more important journals in the data base, the Library can usually supply any of the articles retrieved in searches if they cannot be found closer at hand. Ninety-eight percent of the titles indexed are held within the libraries of the four state region as a whole, so almost never is it necessary to refer to libraries outside the region.

MEDLARS search service is open without charge to biomedical scientists, physicians, dentists, nurses, and other members of the health professions. Individuals without access to libraries may send requests direct to PSRMLS, but the preferred route is through the library the requester customarily uses where the librarian can assist in determining whether the question is more suitable for manual searching in the resources of the local library or for machine searching. Author searches, single term searches, and searches on exceptionally broad topics are not as a rule considered appropriate for machine searching. Data or factual information should, of course, be sought in other types of sources such as handbooks, encyclopedias, texts and monographs.

The service is used to best advantage for searches which involve coordination of a number of terms and relationships which can be defined with a high degree of specificity. An example of an appropriate request is one for references published within the last three years in English or French or German on chemotherapy for adenocarcinoma of the stomach in man and other primates. A manual search on this subject in *Index Medicus* would require checking all the articles printed under the headings *Stomach neoplasms-drug therapy* and *Adenocarcinoma-drug* therapy to pick out those which seemed from the title to fall within the parameters of the request and thus be worth the time to examine. The computer search, on the other hand, would pick out only those articles carrying descriptors for both subject heading sets and tagged for studies on human subjects or primates in English, French or German. It would also, in contrast to the manual search, pick up all papers with these specifications even if they do not constitute the primary theme.

It must also be remembered that MEDLARS is an evolving system and that, though it is under continuous study for improvement, it has limitations. In some areas the indexing vocabulary requires refining and expansion. Papers on concepts which cannot be described by the MEDLARS vocabulary cannot be retrieved satisfactorily, as, for example acute or chronic conditions, qualitative judgments, sequence in time, and comparisons such as greater or less. The terminology occasionally causes some false drops as demonstrated in a search for studies on the effect of above and below average IQ's on anxiety in normal adolescents. The index terms *Anxiety, Intelligence Tests,* and *Adolescence* which bring out desired papers also bring out the effect of anxiety on the results of intelligence tests among adolescents. More important, there is, as in all retrieval systems, a fairly consistent ratio between the number of articles retrieved and the number retrieved which are of high relevance to the user's needs. Generally the greater the recall, the lower the proportion of significantly relevant citations. It is therefore

important for the requester to indicate how exhaustive he wishes his search to be and to realize that to obtain all or most of the relevant papers available in the system, he will have to sort through a bibliography with a large number of papers not pertinent or at least not directly pertinent to his request.

Request forms are available in most Arizona medical libraries as well as from PSRMLS. The search results may be printed out on paper or on 3 x 5 cards, with citations arranged alphabetically by senior author, by journal title, by year of publication, or by language, as the requester wishes. The tracings or descriptors will also, if requested, be included for each citation to form a kind of abbreviated abstract of what the paper covers. Requests are processed and released to users in three to four weeks from date of receipt at PSRMLS unless they present special problems or the computer workload is especially heavy. Because the steadily increasing number of requests for service now exceeds available computer time, the National Library of Medicine has adopted a new policy whereby requests are routinely processed through the citation tape files from January 1967 to date only. A second search through the 1964/66 files is, however, possible on demonstrated need. There are no citations in the system for articles published prior to the middle of 1963.

When the request reaches PSRMLS, it is assigned to one of the specially trained search staff who carefully checks all the information given, examines treatment of the subject in *Index Medicus* and other sources, then studies the subject heading list in relation to the search question. The list differs from the printed *Medical Subject Headings* (MeSH) in that it contains provisional terms being tested for usefulness as permanent components of the system and gives tallies for the number of times a term has been used in the system. The tally gives the search analyst an idea of the size of retrieval to be expected. Often it is necessary, in addition, to consult specialized encyclopedias and dictionaries or standard texts and sometimes to read extensively before selecting terms for the search. If the requester is able to include citations for papers he knows to be pertinent, the search analyst examines these also. Such citations are of great assistance to the analyst in clarifying the requester's precise needs. During the course of the preparation which precedes the formulation of the search strategy, the analyst may find that he lacks sufficient information about what the requester really wants. In that case he will telephone or write the requester as circumstances dictate.

Once the preparation is completed, the analyst, using his knowledge of the system as a base, formulates the request in logical terms and symbols for computer search. The formulation is next revised by another analyst, keypunched on IBM cards and airmailed to the National Library of Medicine which runs the search by batch process on its Honeywell 800 computer. The results are airmailed back to PSRMLS where the search analyst examines the print-out and forwards it to the requester with comments on special features or conditions brought out in the processing. A form is also enclosed for evaluation of the search. Thoughtful appraisal of how well or how poorly the search bibliography meets the user's requirements and why is essential for improvement in indexing, in search techniques, and for changes in design of the system.

In addition to continuous monitoring of MEDLARS demand search performance through individual user feedback, the National Library of Medicine has done a large scale evaluation study, the results of which were published in 1968.* Some points brought out in the study were of a nature to be used immediately to improve current operations. Others are being used in the design for the second generation of MEDLARS which, among many other new features, will provide a greatly enlarged file capacity, better accommodation and faster response to the rising volume of requests for service, greater currency through on-line updating of records, and, in the third and final phase of development, an integration of the system into the biomedical communications network. The first phase is scheduled for operation in 1970 with IBM 360/M50 equipment.

Further information about MEDLARS and other services of PSRMLS is available in Arizona medical libraries or from the office of the Associate Director of the Pacific Southwest Regional Medical Library Service at the University of California Center for the Health Sciences in Los Angeles.

*National Library of Medicine. Evaluation of the MEDLARS Demand Search Service, by F. W. Lancaster. Bethesda, Maryland, 1968.

ArMA Reports

THE MINUTES APPEARING IN THIS SECTION HAVE BEEN EDITED TO CONSERVE SPACE. A COMPLETE COPY OF THE MINUTES OF ANY MEETING WILL BE MAILED TO ANY MEMBER REQUESTING THEM.

SCIENTIFIC ASSEMBLY COMMITTEE

The meeting of the Scientific Assembly Committee of the Arizona Medical Association, Inc., held at 810 West Bethany Home Road, Phoenix, Arizona on Sunday, May 17, 1970 convened at 10:17 a.m., Oscar A. Thorup, Jr., M.D., Chairman presiding.

MINUTES

The minutes of the meeting of December 7, 1969 were approved as distributed.

ORGANIZATION

Assistant Chairman

It was moved and carried that Philip Levy, M.D., be appointed Vice-Chairman for the 1971 meeting with understanding that he be Chairman for the 1972 Meeting. Should Dr. Levy not be able to serve, Dr. William C. Scott is to be asked. Should neither of these men be available, the Chairman, Oscar Thorup, Jr., M.D., is to appoint a Vice-Chairman.

Secretary

It was moved and carried that Edward Sattenspiel, M.D., be appointed Secretary.

FUTURE MEETING LOCATIONS

1971 — It was noted that the 1971 Meeting has been confirmed for the Safari Hotel for April 27 through May 1, 1971.

1972-73 — Following much discussion over possible sights wherein it was pointed out that Tucson would probably not have new hotel facilities ready before 1974.

It was moved and carried that the Committee recommend to the Board of Directors that the 1972 Meeting (April 25-29, 1972) and the 1973 Meeting (April 24-28, 1973) be held at the Safari Hotel, Scottsdale, Arizona.

The Committee felt that as soon as appropriate hotel facilities are available in Tucson that a meeting be scheduled for that city.

80TH ANNUAL MEETING FORMAT

The Committee determined to recommend to the Board of Directors that the following be the format for the 1971 meeting.

A. Board of Directors Meeting
 1. First Meeting, Tuesday, April 27, 1971, 9 a.m.
 2. Second Meeting, Saturday, May 1, 1971, 12 noon.

B. House of Delegates Meetings
 1. First Meeting, Tuesday, April 27, 1971, 1 p.m.
 2. Second Meeting, Saturday, May 1, 1971, 8 a.m.

C. Reference Committee Meetings
 1. Resolutions, Wednesday, April 28, 1971, 8 a.m.
 2. Article & Bylaws, Wed., April 28, 1971, 8 a.m.

D. Blue Shield Corporate Body Meeting(to follow House meetings)
 1. First Meeting, Tuesday, April 27, 1971, 3:30 p.m.
 2. Second Meeting, Sat., May 1, 1971, 10:30 a.m.

E. Blue Shield Reference Committee Meeting (to follow ArMA Reference Committee meeting)
 1. Date: Wednesday, April 28, 1971, 10 a.m.

F. Evening Social Functions
 1. Wednesday, April 28, 1971
 Type: Steak Fry
 Reception Time: 7 p.m.
 Dinner Time: 8 p.m.
 Entertainment: Desert City Six
 2. Thursday, April 29, 1971
 Type: ArMPAC Banquet
 Reception Time: 7 p.m.
 Dinner Time: 8 p.m.
 Program: Unknown
 3. Friday, April 30, 1971
 Type: President's Banquet
 Reception Time:/ 7 p.m.
 Dinner Time: 8 p.m.
 Program: Unknown

G. Sporting Events
 1. Golf Tournament
 Date: Wed., April 28, 1970 — Time: 12 noon
 Chairman: Wilfred M. Potter, M.D.
 Co-Chairman: Seymour I. Shapiro, M.D.
 Financial Contribution: $100
 2. Tennis Tournament
 Date: Wed., April 28, 1971 — Time: 12 noon
 Chairman: Everett W. Czerny, M.D.
 Co-Chairman: Arthur R. Nelson, M.D.
 Financial Contribution: $100

H. Registration Fees

Basic Registration Fee$10
(Includes attendance at Business and Scientific Sessions only — required to attend all social functions)

Breakfast Tickets$3 each
(Includes breakfast served during the breakfast panel sessions — Basic registration required to attend breakfast panels)

Steak Fry$10 each
(Includes Wednesday evening Steak Fry and reception — basic registration required to attend Steak Fry)

President's Banquet$10 each
(Includes President's Banquet on Friday evening — basic registration required to attend President's Banquet)

Package Deal for Two$37.50
(For ArMA members — Includes basic registration, two Steak Fry Tickets, and two President's Banquet tickets)

Package Deal for One$27.50
(For ArMA members — Includes basic registration, one Steak Fry ticket and one President's Banquet ticket)

Non-member registration — Arizona resident....$25
(Includes attendance at Scientific Sessions only)
(Tickets to social functions — extra)

Non-Member registration—Out-of-State resident..$50
(Includes attendance at Scientfic Sessions only)
(Tickets to social functions — extra)

I. 1970 Registration Report

Mr. Robinson reported on the attendance of the 1970 Meeting as follows:

County Society	County Membership No. Members	Registered	% Members Registered
Apache	8	1	12.5%
Cochise	34	9	26.2%
Coconino	40	8	20.0%
Gila	17	2	11.1%
Graham	7	3	42.1%
Greenlee	5	0	—0—
Maricopa	1012	264	26.9%
Mohave	9	3	33.0%
Navajo	10	3	30.0%
Pima	423	57	13.4%
Pinal	31	8	25.2%
Santa Cruz	9	2	22.0%
Yavapai	24	6	25.0%
Yuma	40	11	27.0%
MEMBERS Sub-Total	1669	377	22.6%
Non-Member M.D.'s*		107	
Doctors of Osteopathy		33	
Total Physician Registration		517	
Non-Physician Registration**		360	
Total Registration		877	

*Non-Member M.D.'s		**Non-M.D. Registration	
Interns & Resident	43	Exhibitors	189
Guest Speakers	16	Woman's Auxiliary	140
Out of State	36	Medical Students	5
In State	12	Others	26
	107		360

States Represented In "Out-of-State" Group

Colorado	4
Illinois	2
Iowa	5
Minnesota	2
Missouri	3
Nebraska	1
New Mexico	4
New York	5
Oklahoma	1
Oregon	2
South Dakota	2
Utah	1
Washington	1
Wisconsin	3
	36

Mr. Robinson pointed out that this is a new record for recent years.

J. Exemptions

It was moved and carried that the registration exemptions be continued as follows: 50 Year Club Members, Interns, Residents, Military Physicians, Registered Nurses, Medical and Pre-Medical Students, members of the Woman's Auxiliary, exhibitors, press, and Guest Orators.

K. Newcomer Program

It was moved and carried that the Newcomer Program be continued as in the past.

L. Scientific Exhibits

It was moved and carried that the same number and location of Scientific Exhibits as in 1970 (11 Booths) be maintained.

1. Thomas W. Bauer, M.D.'s letter dated April 29, 1970 was referred to Mr. Robinson for response.
2. The matter of providing an award to the best Scientific Exhibit was discussed.

It was moved and carried that a "Traveling Plaque" be awarded. This would be awarded each year; said Plaque would remain with the Association. At the same time appropriate Plaques would be presented to the individuals who prepared the Winning Exhibit.

M. Woman's Auxiliary Hobby Show

It was moved and carried that the Woman's Auxiliary be offered the same location for their Hobby Show.

N. Commercial Exhibits

1. Fee

 It was moved and carried that the Commercial Exhibit fee be continued at $300.
2. Booth Attendance

 It was moved and carried that the Booth Attendance Program be continued with a budget of $300.
3. Recesses

 It was determined to continue thirty minute Recesses morning and afternoon.
4. Guests

 It was agreed that the Exhibitors would again be invited to attend the Steak Fry as our Guest and that they would be invited to attend other Social Functions at their own expense.
5. Exhibit Hall Hours

 It was moved and carried that the Exhibit Hall hours be as follows:

 Tuesday — 1:00 p.m. to 5:00 p.m.
 Wednesday — 8 a.m. to 12 noon
 Thursday — 8:00 a.m. to 5:00 p.m.
 Friday — 8:00 a.m. to 4:00 p.m.

O. A. H. Robins Community Service Award

The Committee determined to recommend the continuance of this award program.

P. AAGP Credit

It was determined that Dr. Grobe would be asked to obtain AAGP — Category I credit for our program at the appropriate time.

Q. Specialty Group Luncheons

1. It was determined to continue to schedule specialty luncheons on Tuesday, Wednesday, Thursday, Friday, and Saturday.
2. The matter of having ArMA staff assist the specialty groups administratively was discussed. It was determined that the staff would develop a system whereby greater attendance could be developed at those specialty luncheons where it is appropriate.

R. Scientific Program

Drs. Robert M. Bird and William O. Smith of the University of Oklahoma School of Medicine presented a suggested format based partly on a Case Presentation followed by specialty discussions of the Case Presentation.

Many variations of the possible format were discussed. It was determined that Drs. Byrd and Smith

would subsequently submit a proposed program for consideration of the Committee.

House Staff Papers

The matter of providing some incentive to house staff to submit papers for consideration was discussed. It was determined that all expenses should be paid, including social functions, for those house staff members whose papers have been accepted for the program.

SCHOOL FOR 1972 MEETING

It was moved and carried that the University of Arizona College of Medicine be asked to provide the Faculty and Program for the 1972 Meeting. Should the College of Medicine not be able to handle this request, it was determined that U.C.L.A. be asked.

COMMUNICATIONS

Mr. Jacobson's letter of 3/23/70 regarding the possibility of Dr. Roger Egeberg's being a guest speaker at the President's Banquet was read and referred to Dr. James L. Grobe for his consideration.

Meeting adjourned 1:55 p.m.

Edward Sattenspiel, M.D.
Secretary

PUBLISHING COMMITTEE

The meeting of the Publishing Committee of The Arizona Medical Association, Inc., held Tuesday, May 19, 1970, in the Headquarters Building, 810 West Bethany Home Road, Phoenix, Arizona, convened at 7:14 P.M., John R. Green, M.D., Chairman, presiding.

WELCOME

Dr. Green welcomed the new members of the committee and introduced Mr. John Turner, Public Relations Consultant for the Arizona Medical Association.

EDITORIAL BOARD

Dr. Geen explained to the committee his plan to utilize the Publishing Committee, appointed by the Board of Directors, as members of the Editorial Board in order to obtain the greatest possible involvement and participation. It is the intent to add to the Editorial Board, and the following members have accepted appointments:

M. David Ben-Asher, M.D.
W. Albert Brewer, M.D.
Arthur V. Dudley, Jr., M.D.
C. Herbert Fredell, M.D.
Kenneth E. Johnson, M.D.
Robert F. Lorenzen, M.D.
Darwin W. Neubauer, M.D.
Howell S. Randolph, M.D.
Paul L. Singer, M.D.

FINANCIAL REPORT

The committee reviewed the financial report of the Publishing Committee ending April 1970, and noted a net loss of $108.97 for the year to date.

It was moved and carried that the Financial Report be accepted.

WESTERN JOURNAL OF MEDICINE

There was a considerable amount of discussion pertaining to the Western Journal of Medicine supplement which has been inserted in ARIZONA MEDICINE since November 1969. The committee reviewed the cost of the supplement as well as the value in terms of additional advertising revenue, and the value of the articles in the supplement versus those original articles authored by Arizona physicians.

It was moved and carried to increase the number of Original Articles in each issue to as many as financially feasible, and to delete the Western Journal of Medicine Supplement as soon as possible.

FUTURE MEETINGS SECTION

For information purposes, it was reported that the Ad Hoc Committee on Continuing Medical Education is charged with informing the membership of approved postgraduate medical education programs, and that one method of achieving this would be through ARIZONA MEDICINE.

It was moved and carried that in cooperation with the Ad Hoc Committee on Continuing Medical Education, contacts be made with the Medical Societies, Specialty Societies, and Medical Education Directors of the Hospitals in Arizona, as well as other organizations and individuals who could assist us in maintaining an up-to-date listing of Future Meetings of Medical Interest; and publishing this listing in ARIZONA MEDICINE.

GENERAL CRITIQUE

By increasing the number of original articles to be published in each issue, it was determined that the papers given during the annual scientific session by the guest orators as well as the local physicians should be reviewed for possible publications.

It was moved and carried that a letter be written to the Chairman of the Scientific Assembly Committee requesting a copy of the papers approved for presentation during the Scientific Session, for review by the Editorial Board and possible publication in ARIZONA MEDICINE.

The committee congratulates William McGrath, M.D. for his 50th editorial appearing in the April issue of ARIZONA MEDICINE, and seeks the support of editorials by other members of the Editorial Board.

It was determined that another meeting would be called during the month of September to include the Editorial Board.

MEETING ADJOURNED AT 9:05 P.M.

Edward Sattenspiel, M.D.
Secretary

AD HOC COMMITTEE ON PROFESSIONAL LIABILITY LEGISLATION

The meeting of the Ad Hoc Committee on Professional Liability Legislation of the Arizona Medical Association, Inc., held Sunday, May 24, 1970 at 810 West Bethany Home Road, Phoenix, Arizona convened at 2:25 p.m., Paul B. Jarrett, M.D., Chairman presiding.

MINUTES

Approved minutes of the February 8, 1970 meeting as distributed.

AMERICAN ARBITRATION ASSOCIATION

Mr. Paul A. Newnham, Regional Director of the American Arbitration Association reviewed in great detail the background, organization and function of the A.A.A.

He related further the experience, the first of its

kind, of the test program in Southern California where the concept of arbitration is being applied to ten hospitals and the medical staff and their patients. He noted that during the first eight months not one malpractice case has been filed where the patient has signed the arbitration agreement with the physician and the hospital.

Several hours of discussion ensued with many questions being asked of all phases of the program.

It was moved and carried that a program be developed for Arizona in cooperation with the Arizona Hospital Association, and that another meeting should be held to develop this matter further as soon as feasible such meeting to include: ArMA's Committee

Mr. Paul A. Newnham
ArHA's Representative
ArHA's Legal Counsel
ArMA's Legal Counsel
Mr. James E. Ludlam, Legal Counsel, California Hospital Association
Representatives of the State Insurance Association
Representative Scott Alexander

LEGISLATIVE PROGRAM FOR 1971

Discussion ensued regarding legislative efforts for 1971.

It was moved and carried that prime emphasis should be placed on the passage of two bills: The Codification of the Defunction of Malpractice and the confidentality of Hospital Medical Staff Committee Records.

Interim Study

John Haugh's letter of 3/23/70 regarding an interim study on malpractice was discussed. It was determined that the Committee would do everything possible to assist the legislature in this study.

PHYSICAL EDUCATION

The matter of preparing a brochure for physicians to help educate them on how to keep out of malpractice suites was discussed. It was suggested that further information should be developed for the Committee's consideration at a later meeting.

MEDICAL-LEGAL PANELS

It was noted that Maricopa County Medical Society is again considering the development of a medical-legal panel. It was pointed out that should this develop then most physicians (Pima, Maricopa, and Cochise) would have access to such a procedure.

It was suggested that the Association might assist in coordinating the three programs in such a way as to make these panels available to all physicians.

Meeting adjourned 5:28 p.m.

Edward Sattenspiel, M.D.
Secretary

MEDICAL ECONOMICS COMMITTEE

Meeting of the Medical Economics Committee of the Arizona Medical Association, Inc. held Sunday, June 7, 1970, at 810 West Bethany Home Road, Phoenix, Arizona, convened at 10:27 a.m., Harvey G. Brown, M.D., Chairman presiding.

MINUTES

Minutes of the 10/3/69 meeting were approved as distributed.

COMPUTERIZATION OF INSURANCE FORMS

Mr. Phil Stoufer, New Products Manager for Valley National Bank made an in-depth presentation regarding the possibility of using a computer for the preparation of insurance forms for the individual physician.

It appears that the basic problem with the approach presented is the need for a standardized form that is required to make the system compatable for the computer.

It was suggested that should Valley National Bank so desire, they proceed with the job of developing a standard form that would be acceptable to all insurance companies.

It was also determined that the Arizona Medical Association provide a letter to Valley National Bank indicating their support of the program for development of a standard insurance form.

It was requested that when such a form is developed it be presented to this Committee for review.

MASTER CHARGE

Mr. Charles O. Sweet of the Valley National Bank Credit Card Division explained the bank wished to engage in a newspaper advertising program which would advise the public that many physicians in Arizona are accepting Master Charge credit cards as a form of payment for professional services.

Following much discussion which included two major points:

1. Individual physician's names would **not** be listed.
2. That final layout and wording of the advertisiement would be cleared with the Arizona Medical Association before it is released.

It was moved and carried that the Medical Economics Committee recommend to the Board of Directors the endorsement of the proposed advertising program.

NATIONAL CASUALTY COMPANY DEFENDANTS REIMBURSEMENT POLICY

Dr. Brown reviewed the request of the National Casualty Company for endorsement of a Defendants Reimbursement Policy.

It was noted that no membership participation was required and that the policy could be marketed without the endorsement of the Association.

It was moved and carried that the Board of Directors be advised that the Medical Economics Committee has no objection to the marketing of this policy, but that specific association endorsement be withheld.

CONTINENTAL - NATIONAL - AMERICAN

The proposals submitted by Snodgrass, Lovitt & Downey, Insurance of Tucson and Standard Insurance Agency of Phoenix regarding possible group malpractice insurance programs underwritten by the CNA/Insurance group were discussed in-depth.

Dr. Landeen pointed out the current activities resulting from the recent survey and the fact that a presentation is scheduled for June 28 by INA.

It was moved and carried that no action be taken on these matters until such time as the Board of Directors acts on the INA presentation.

MODERN AMERICAN CORPORATION

The retirement plan as proposed by the Modern American Corporation was reviewed by the Chairman.

It was noted that similar plans are being offered by many banks and insurance companies.

It was moved and carried that no endorsement be given by this Association.

GROUP LIFE PROGRAM FOR WIVES

Mr. Charles deLeeuw's request for endorsement of a group life insurance program for physician's wives to be offered through the Woman's Auxiliary was discussed.

It was moved and carried that no endorsement be given by this Association.

BLUE SHIELD FORM

Mr. Foster's letter of April 10, 1970, and the new Blue Shield claim form were reviewed. Also discussed was the manner in which the form was changed without consultation with the Association.

It was suggested that a letter be written to Blue Shield requesting better coordination between the two organizations with regard to future form changes.

1969 RELATIVE VALUE STUDIES

Differences: Mr. Barnett reviewed the 1969 RVS and how it differs from the 1964 RVS pointing out that it requires five conversion factors instead of one. That it contains at least 1200 more procedures than previous studies.

NABSP Position: It was noted that the National Association of Blue Shield Plans has taken the position of not adopting the 1969 study.

Following extensive discussion it was moved and carried the Medical Economics Committee recommend to the Board of Directors that the Board of Directors arrange for introduction of a resolution at the next Blue Shield corporate body meeting requiring Blue Shield to adopt the nomenclature and unit values as set forth in the 1969 relative value studies for all fee schedules, in the future.

It was also suggested that Blue Shield be encouraged to work with the Valley National Bank on the development of a standardized form.

OCCUPATIONAL HEALTH COMMITTEE

Resolution #10-70 setting up the Ad Hoc Committee on Occupational Health was reviewed. The functions of the Medical Economics Committee and those of the Occupational Health Committee were delineated.

It was determined that the Chairman of the Occupational Health Committee be invited to attend future meetings of the Medical Economics Committee as a way to maintain liaison between the two committees.

COMMUNICATIONS

Medical Society of the State of New York's letter of 1/16/70 regarding the 9/22/69 Workmen's Compensation survey was received.

John P. Gallagher, M.D.'s letter of 3/18/70 regarding insurance company presentation was received.

The American College of Obstetricians and Gynecologists' letter of 2/29/69 regarding membership on medical care negotiating teams was received.

The recent development of the AFL-CIO, Group Health Association of America program was noted.

Reuben Dalbec's letter of 5/14/70 regarding the Hartford's new group malpractice program in Los Angeles County Medical Association was received.

OTHER BUSINESS

ICA Negotiations

It was pointed out that the ICA is interested in a negotiation session in mid-July.

Dr. Brown indicated that he would appoint a subcommittee to handle this matter and a meeting of the subcommittee would be called soon.

Meeting adjourned 2:20 p.m.

Edward Sattenspiel, M.D.
Secretary
Bruce E. Robinson
Executive Director

DEAF-BLIND CENTER SYSTEM PROJECT

The Southwest Regional Center for Deaf-Blind Children has been established in Sacramento, serving the geographic area of California, Arizona, Nevada and Hawaii. The program is funded through the Bureau of Education for the Handicapped under the provisions of the Elementary and Secondary Act, P.L. 90-247, Title VIC.

The primary objective of the Center is to locate and identify deaf-blind (congenital rubella syndrome, encephalitis, etc.) children in these areas and concurrently to provide and make available comprehensive diagnostic and educational services for these children. Consultative services will also be provided to those directly involved with the deaf-blind child.

Dr. William A. Blea is the Project Director for the four-state region. For either reporting of identified deaf-blind children or information regarding services contact Dr. Blea at:

Southwestern Region Deaf-Blind Center
Division of Special Education
California State Department of Education
721 Capitol Mall
Sacramento, California 95814
(916) 445-8071

COCONINO COUNTY MEDICAL SOCIETY

announces

SUMMER MEDICAL SEMINAR

August 1 and 2, 1970
Coconino County Health Department
Flagstaff, Arizona

GUEST FACULTY:
The University of New Mexico
School of Medicine

For further information contact:
Coconino County Medical Society
118 West Hunt Avenue
Flagstaff, Arizona 86001

Directory

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Original Articles

DEVELOPMENT OF SYSTEMS OF SPINAL INJURY MANAGEMENT WITH A CORRELATION TO THE DEVELOPMENT OF OTHER ESOTERIC HEALTH CARE SYSTEMS



JOHN S. YOUNG, M.D.*

"Spinal injury is one of the catastrophic crippling conditions of our society. This article emphasizes this fact and describes a system to bring the most modern of medical, scientific, and community resources to help these patients by early definitive treatment and optimal emphasis on rehabilitation."

There has been a phenomenal expansion of scientific medical knowledge within the past two decades. With new understanding and instrumentation has come the development of life-saving and life-prolonging techniques that have been of almost miraculous benefit to the suffering individual. Paradoxically, these advances have created serious problems for society. Life has been prolonged but, unfortunately, this is not necessarily accompanied by enhancement of the individual's capacity for enjoyable living. At great expense, we have created an ever expanding reservoir of human disability that is even more expensive to maintain.

The development of systems for the delivery of health care which emphasize prevention rather than treatment of crisis has not kept up with scientific technical advancement. There appears to be an appalling inability for our calcified, super-organized society to react to the need. Business copes with problems of technological change quite adeptly. Highly complex systems of production and delivery are organized, financed and administered with flexible, economical efficiency. However, if the product is the maintenance of human health these established business principles of organization, financing and management are frequently overlooked. This is utter nonsense. It is not the purpose of this paper to philosophize as to why this should be.

It is particularly the complex, sophisticated and expensive medical programs that demand an organized system for delivery of service. The low incidence of the diseases they are designed to treat, combined with the expense of their construction and operation, require centralization. Modern concepts of the proper management of spinal injury is illustrative of many clinical entities that are best treated by a categorical, esoteric approach.

Fortunately, the incidence of spinal injury is low. Data accumulated in this country and throughout the world indicates it is approximately 20 to 50 per million population per year. This would suggest we are experiencing a national annual incidence in the United States of approximately 4,000 to 10,000 new cases. Fifty percent of these cases will be below the age of 25 and a strong majority (probably at least 70 percent) will be males. Medical advances in life-saving techniques will insure them an additional 20 to 40 years of survival following injury.

It is unfortunate that the insurance industry has not compiled and published its combined experience in spinal injury in cases covered by

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workmen's compensation. This experience represents a well documented source of information regarding incidence, survival and costs of medical management. Unpublished sources, however, suggest that the incidence of spinal injury ranges from approximately one to five per each $50,000,000 workmen's compensation premium. The rather wide extremes reflect the risk inherent in the insured industry. The experience of an electronics assembly operation would obviously be less disasterous than an underground mining operation. It is equally unfortunate that we do not have the true total costs accumulated by the Veterans Administration in the care and maintenance of its large population of spinal injured persons. Undoubtedly, the magnitude of these costs would be sobering, and at the same time alarming.

The advent of unlimited medical benefits for compensable injury in most of our states has brought the true cost of spinal injury into grim perspective. By the process of distillation, the reinsurance industry and the large primary carriers with high retentions were the first to become aware of the staggering costs of accumulated medical expense. They also were the first to see revealed in retrospect the grim complications arising from inappropriate medical and claims management. Each case of complete spinal injury requires a reserve of $250,000 to $500,000.

At the present time our fragmented, unsystemized approach to spinal care is costing $20,000 to $40,000 for the initial year's care. A modern spinal injury program should have the patient home — trained and equipped to enable him to live successfully with his disability within four to five months of his injury. Figuring a generous 150 days initial stay, the average cost of initial treatment should be approximately as follows:

Emergency evacuation	$ 500
Hospitalization at $100/day	15,000
Medical and surgical fees	3,000
Equipment	2,000
Home modification	2,000
Follow-up care first year	1,000
	$23,500

It appears we must provide an average of approximately $25,000 for initial care. Extremes of the individual case may vary from $15,000 for the uncomplicated paraplegic to $35,000 for the high quadriplegic with complicated associated injuries. Added to these initial costs, of course, is the subsequent cost of maintenance, treatment of medical complications, loss of income and, as a consequence, loss of taxable dollars to the United States. It is in the area of subsequent costs that great savings are made by proper initial care and follow-up.

Combining these relatively firm approximations from the experience of this and other countries it would appear that we have a problem. Multiply the conservative figure of 5,000 new cases a year by the conservative estimate of $400,000 per case and we arrive at the startling total cost of the annual increment of spinal injury to the United States — $2,000,000,000.

Projecting a conservative life expectancy of 20 years following spinal injury, the United States will spend from a combination of sources approximately $40,000,000,000 on cases of spinal injury that will occur over the next 20 years. This does not even consider population increase, nor does it consider the average cost of maintaining the approximately 100,000+ living persons in the United States who have survived spinal injury and are presently living with its sequela.

Tragically, this is not the cost of spinal injury. A large proportion of this cost represents medical waste for the treatment of preventable complications and payment for unnecessary custodial care. The waste is the result of inappropriate, fragmented unsystemized and unsophisticated administrative and medical management. A combined systems approach would conservatively reduce this cost by 20 to 30 percent.

The need for developing systems of spinal injury management in this country has become obvious. Many conferences have been held during the past five years to define the problem and develop solutions. There has been a disgusting paucity of progress resulting from these efforts.

The essential ingredients of an optimal system for spinal injury treatment have been demonstrated by centers in this country and abroad. They are these:

1. The over-all medical management of the paraplegic must be directed by a single physician who has special training and experience in treating spinal injury. To use the European term, he is a "paraplegist."

2. Governmental agencies and insurance and industrial medical programs must concentrate management of these cases at the higher echelons of administration. Case management or

claims management of spinal injury requires the same degree of specialization and expertise as medical management. The economics justify this type of customized service. Savings that may be made on a single case can equal the annual salary of the department head, or the company president for that matter.

The State rehabilitation agencies, for example, should have a supervisor for spinal injury management who works closely with the spinal injury center for the rehabilitation of clients sponsored by the State agency. He must have a small case load of catastrophic cases that require a customized rehabilitation approach. The insurance industry must develop the same expertise in a few high echelon rehabilitation specialists. They must have the experience and authority to make innovative decisions involving sizeable sums of money.

Claims management of the catastrophically injured individual cannot be the responsibility of the front line claims man in a local office. The small insurance company carrying a low retention, and having a low experience rate of catastrophic injury, must solicit and demand specialized help by experts in catastrophic management from its reinsurer. Every self-insured industrial medical program should have some provision for specialized management of the catastrophic case.

3. The combination of low incidence and high service costs demand the centralization of treatment programs. It requires a population of 3 to 5 million people to support one spinal injury center operating 50 to 100 beds. It is the consensus of specialists in spinal injury throughout the world that 50 to 100 spinal injury beds represent the minimal and maximal size of a modern spinal injury unit.

All spinal injured persons, regardless of the source of economic sponsorship, should be cared for by a regional system that provides optimal emergency evacuation, initial medical treatment and literally lifetime follow-up care.

4. Application of effective surgical and medical techniques to prevent undue spinal injury is dependent on the community's ability to develop a system of emergency evacuation with modern transportation and communications. This will reduce the incidence of paraplegia, or at least reduce the degree of paralysis. Such evacuation systems will transport the patient without unnecessary additional trauma to medical complexes staffed and equipped to provide optimal, definitive emergency treatment of the spinal injury and associated injuries. The entire evacuation sequence should not consume more than two hours from the moment of injury.

5. The system must provide an environment equipped and staffed by specialists in all aspects of spinal injury care. It should be architecturally designed for the physical and psychological needs of the paraplegic. This is the spinal injury center. As mentioned before, it should have 50 to 100 beds with nursing units capable of progressive care extending from a few days after the patient's injury through the pre-discharge, self-care adjustment phase. When the patient is ready to leave the intensive care unit of the hosiptal complex, he is ready for admission to the spinal injury center.

It is in the spinal injury center that the patient is given optimal early care and training and is equipped for living with his disability. He is taught how to prevent or minimize future medical complications that impair his rehabilitation, reduce his potential level of function and compound the expense of his future care. Most important, the spinal injury center must be oriented to the psychological adjustment essential to successful living with a severe permanent disability.

6. The system of centralized care imposes on the spinal injury center the responsibility of developing communication, transportation and channels of on-going liaison with the patient's family physician, his sponsoring insurance carrier or governmental agency and appropriate community resources available to assist and monitor his transition to life of living with a severe disability. The spinal injured person is never rehabilitated in the sense that he reaches an optimum and stays there. He is always exposed to the risk of deterioration of his physiological, sociological and psychological status. On-going management and monitoring reduce the risk and degree of that potential deterioration.

7. A centralized system of spinal injury management provides an adequate volume of patients to support a financially sound operation. Equally important, it provides the opportunity to develop expertise in all aspects of spinal injury care. The decentralized, fragmented care of the spinal injured patient in this country has been the most deterring factor to the accumulation of statistically significant data on epidemiology, appropriate methods and techniques of early care, and proper long term follow-up.

8. A centralized system of spinal injury management will provide for training of specialists in spinal injury. At the present time no medical or surgical specialty adequately trains its resident physicians in all aspects of spinal injury care. The same is true of schools of nursing, physical therapy, occupational therapy, medical social service, psychology or vocational counseling. The insurance industry does not train all of its claims men to manage these catastrophic cases. Industrial medical programs do not provide personnel with comprehensive knowledge in the needs of the spinal injured person. Considering the low incidence of spinal injury, this generalized lack of specialized knowledge and skill is appropriate. As a part of its esoteric approach to total management, the spinal injury system must accept the responsibility of training a relatively few experts in related professional fields beyond the general training gained in their basic professional education.

9. Lastly, a centralized system of spinal injury care will offer opportunity for clinical research, applying concepts developed by a sound basic research affiliation. The primary purpose of a system of medical care is to care for people. Too many of our research oriented medical programs look upon the patient as a means to the end and not the end itself. This phenomenon must be reversed. We should, however, capitalize on the opportunity to clinically evaluate the fruits of basic research on the statistically significant group of patients which will be available in a centralized system of care.

The essential ingredients and benefits of a centralized spinal injury system as described above have been identified and demonstrated, at least in part, by experience accumulated in this country and abroad. The need is clear. The technique and know-how is available. All that is lacking in this country is a system of implementation. Since the job is complex, expensive and multiple disciplinary in nature, there are those who say this must be a job for the Federal government. They say we must start from scratch and create a network of Federally constructed and operated centers. This would ignore completely the greatest natural talent this country possesses — the ability of private enterprise to innovate, organize, finance and operate systems of production.

Even though it involves human life and requires professional skills, health service is a product. Production of this product is not a job for the government. It is not a job for the universities. It is not a job for private enterprise acting alone. It is a job for all of them working together.

Quoting Tom Alexander in his paper, "The Unexpected Payoff of Project Apollo," *Fortune*, July 1969: "The really significant fallout from the strains, traumas and endless experimentation of Project Apollo has been of a sociological rather than a technological nature: techniques for directing the massed endeavors of scores of thousands of minds in a close-knit, mutually enhancive combination of government, universities and private industry. This is potentially the most powerful tool in man's history." We must apply this tool to the delivery of spinal injury care, and beyond that, to the total concept of health care systems.

Inevitably discussions regarding ways and means of implementing systems of spinal injury care get hung up or bogged down on the question, "How are they going to be financed?" Inevitably, as is traditional in health care innovation, it is decided financing must come from government grants, private foundation gifts, benevolences of little old rich ladies and women's auxiliary cookie sales. Any corporation that anchored its foundation for expansion on such nebulous sources of finance would soon go down the drain.

Should not all this give a clue to a positive plan for the establishment of a network of spinal injury systems (and other esoteric health systems) in this country? What must be done?

First, we must establish a human organizational mechanism involving government and governmental agencies (both State and Federal), major medical complexes (both private and university), and private industry to guide the development of the system.

Second, capital costs are a part of the cost of operation of any business. Thus, they should be charged to operation. In this way, capital expense is borne by the purchaser of the service in proportion to his utilization of the service. This has the uncomfortable feature of establishing real costs but it is "the only way to run a railroad."

Third, research and educational costs should be subsidized by appropriate government and private foundation grants. These costs must be meticulously separated from the cost of patient care. One of the most glaring weaknesses of our governmental grant programs has been their ill-

disguised efforts to subsidize patient care programs under the guide of research and education. This has only served to confuse the issue and to establish programs that survive only as long as the benevolence of the granting source, which in turn is frequently dependent on the vagaries of legislative appropriation.

Fourth, operational costs for patient care must be charged to the purchaser of the service. This requires no great innovations or new sources of funding. It does require adequate funding of appropriate existing private and governmental programs.

Invariably, health programs fall short of their projected goals because of the failure to apply common sense principles of good business management. They are plagued by chronic underestimation and inadequate financing. Having failed because of these deficiencies, they are replaced by entirely new programs that are doomed to failure because of the same inherent weaknesses.

The Craig Rehabilitation Hospital, a private non-profit institution in Denver, Colorado, has developed an outstanding spinal injury program over the past 12 years. This was done without major grant support and serves as a demonstration that operational costs can be met from operational income. The success of this isolated experience is deserving of analysis. The small 32 bed hospital, providing complete services for the spinal injured, accumulated a surplus of $19,000 in the years 1966, 1967 and 1968. Gross revenue from operations during the same period was $2,100,000. The Institution thus generated an approximate 10 percent surplus on its operation. Perdiem rates were comparable to general hospital rates. The surplus was diverted into the hospital's development fund, which, when parlayed with private and government grants and backed by a sound operational experience, has enabled the Institution to borrow sufficient funds to build a new 80 bed hospital.

The fiscal stability of the Craig Rehabilitation Hospital rests soundly on a broad base of patient referral with a variety of sources responsible for the cost of patient care. A close look at these sources developed by the hospital provide answers to the enigma of how we can support the high initial cost of proper spinal injury care without resorting to huge subsidies from the Federal government for building and operating spinal injury centers.

In 1967 the sources of operational income from patient care provided by the Craig Rehabilitation Hospital were as follows:

Patient Days Care by Sponsor — 1967

SPONSORS	Days Care	%	% of Total
Federal & State Agencies:			
Handicapped Children's Program	435	14.8	4.5
Department of Rehabilitation	1254	42.7	13.0
University of Colorado Grant	421	14.3	4.3
PHS Division of Indian Health	824	28.2	8.5
TOTAL	2934		30.3
Hospitalization Insurance:			
Blue Cross-Blue Shield	1330	41.8	13.8
Medicare	660	20.8	6.8
Other	1188	37.4	12.3
TOTAL	3178		32.9
Workmen's Compensation	3324		34.4
Self and Other Sponsors	235		2.4
TOTAL Days Care Rendered	9671		100.0

Even though Craig has no endowments to support indigent patient care, within the past three years the hospital has been able to arrange for financial support for almost every patient referred for care.

This would indicate that only minor changes are necessary in existing private insurance and governmental agency programs to finance the high initial cost of spinal care which is mandatory if we are to reduce the staggering cost of continued medical maintenance and custodial dependency. These changes are primarily an insurance underwriting exercise involving a low incidence-high cost risk. With its experience in underwriting this presents one major problem to the private insurance industry. The government would do well to avail itself of this experience. Unfortunately, hard figures based on true estimated costs are more difficult to sell to economy-minded legislators than pie-in-the-sky underestimates that can be subsidized from other governmental sources. This subsidy creates the illusion that we are getting something for nothing.

Benefiting by the experience of the Craig Rehabilitation Hospital, the Institute of Rehabilitation Medicine (Good Samaritan Hospital) and the Barrow Neurological Institute (St. Joseph's Hospital) in Phoenix, Arizona have joined together, along with governmental agencies and institutions, to establish a system of spinal injury care. The Arizona State University under its AMES (Air Medical Evacuation System) Program is working with the State Highway Patrol to develop a system of helicopter evacuation. Patients are evacuated to heliports at Good Samaritan Hospital, St. Joseph's Hospital and

other medical centers in the state. After early definitive treatment, spinal injury cases are transferred to the 40 bed Spinal Injury Service at Good Samaritan's Institute of Rehabilitation Medicine. Follow-up care is arranged by the Spinal Injury Service, utilizing appropriate community resources. The complete details of this system will be the subject of a subsequent paper. The program will be financed from operational income derived from purchase of service by existing private and governmental programs. These sources, with suggestions for the changes needed to provide coverage for spinal and other catastropic injury and disease, are as follows:

1. *Private Hospitalization and Industrial Health Insurance.* The basic 120-day medical policy will cover a major proportion of the initial expense for spinal injury care. In addition to primary coverage, we must add major medical benefits up to $15,000 on an 80/20 percent basis. This should be permitted to cover out patient services and provide adaptive equipment and even home modification — all designed to reduce medical complications and reduce hospital stay.

2. *Medicare.* This program should provide the same benefits as above. It is unlikely that Medicare coverage will ever provide a basic 120-day policy. Consequently, it should be supplemented by a major medical plan to pay for the low incident-high cost medical entities. This would require close, centralized management and supervision. An 80-20 percent coverage or even a 90/10 coverage would reduce over-utilization.

3. *Medicaid (Title 19).* This program should also provide the same benefits as listed under Medicare.

4. *Workmen's Compensation.* Most states have unlimited medical benefits. We should have an acceptable Federal standard providing for proper medical care in all of the state programs.

5. *Federal-State Vocational Rehabilitation.* Legislative appropriations must provide adequate funds to "re-insure" state rehabilitation programs for the additional costs of rehabilitating cases with catastrophic disability. Services for these cases should be supervised by specialists at the state departmental level.

6. *Crippled Children's Program — Public Health.* Though chronically under-financed, this has been one of our best Federal-State programs in most states. Better financing and centralized management as suggested for the State Vocational Rehabilitation programs would enhance its effectiveness.

7. *Veterans Administration.* The Veterans Administration has provided early leadership for spinal injury in this country. However, if a network of civilian spinal injury centers is to be developed, consideration should be given for the veteran to receive his care in these centers with funds being provided by his military branch of Service or the Veterans Administration. This could be done on a contract care basis.

With proper underwriting and financing of the above existing programs, private medical care can be provided for the medically indigent patient. Systems of health care, including spinal injury, could be developed according to sound business principles blended with responsible professional care. The irony of it all is that this approach would cost less than our present "non-system" of unorganized delivery of health services.

Realistically, it will take five or even ten years to complete the process of reorganizing our national health care systems, particularly those related to catastrophic injury and disease. In the meantime, special appropriations must be made by Congress to pilot and demonstration programs. The "re-insurance" technique, as used by the private insurance industry, should be applicable to this development. Medical complexes developing pilot and demonstration programs should be granted special funds to underwrite the excess costs not provided by existing programs. In this way, all persons in a given region, regardless of the referring source and available financial resources, could be given optimal care at the optimal time.

As epidemiological data is accumulated the initial special funding can be replaced by budgetary funding through existng Federal-State programs. Guided by a carefully planned blueprint for expansion, this pilot and demonstration experience can be expanded to provide an interlocking, inter-communicating network of regional systems of spinal injury care throughout the country.

In summary: Our nation's forte is our ability to innovate, organize, finance and administer private systems of production. Health care is a product. We must establish a human organizational mechanism involving private enterprise, government, and our universities to produce a product worth buying.

CERVICAL MEDIASTINOSCOPY AND MEDIASTINOTOMY

CECIL C. VAUGHN, M.D.* C. THOMAS READ, M.D.*

Methods to obtain a tissue diagnosis of intrathoracic lesions as well as lesions within the mediastinum of unknown etiology, and to determine which patient with a malignant neoplasm should be subjected to thoracotomy are frequently indicated and performed with warranted justification and gratifying rewards.

Initial attempts in this regard encompassed scalene node biopsy, subsequent embellishments of this procedure and more recently anterior mediastinotomy[1] which has been received with less enthusiasm. Cervical mediastinoscopy and mediastinotomy have proved to be the most productive methods used and have received widespread application in achieving these goals. These latter procedures should be considered in the diagnosis of various primary and secondary intrathoracic and mediastinal diseases and tumors, particularly those of granulomatous or neoplastic origin. The extent of a neoplasm can be evaluated and operability determined from the observations made. Frequently a formal thoracotomy can be avoided when the findings are those of widespread involvement correlating well with the x-ray picture and the clinical data. Mediastinoscopy and mediastinotomy offer a source of information that may profoundly influence the choice of appropriate surgical, radiation or drug therapy to be exercised or maintained.

Anatomically the pulmonary lymphatics drain to the hilar, subcarinal, paratracheal nodes and finally to the supraclavicular nodes. Daniels in 1949[2] was credited with early attempts of detecting extrathoracic spread of lung tumors and other systemic thoracic lesions to the scalene lymph nodes. Harken[3] in 1954 introduced a further technique of bilateral cervical mediastinal exploration with a laryngoscope under local anesthesia. Radner[4] in 1955 presented a method of biopsy of paratracheal nodes through a suprasternal incision. Carlens[5] introduced the technique of anterior cervical mediastinoscopy in 1959. Subsequently this technique gained widespread acceptance in foreign medical centers and more recently has been acclaimed in this country.

This report contains the clinical experience obtained with cervical mediastinotomy and

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mediastinoscopy in 82 patients in the past two years, with the procedures performed at various hospitals. It is a much more rewarding procedures than scalene node biopsy in the diagnosis of bronchogenic carcinoma and other pulmonary neoplasms, as well as granulomatous diseases involving the lungs and particularly efficacious in diagnosis of primary mediastinal tumors, such as lymphoma. The procedure is accomplished fairly easily with minimal complications and minor morbidity and in the literature mortalities are reported occuring rarely. Many of the deaths associated with the procedure have been related to the underlying disease processes or associated involvement of other vital systems. (Tables I, II and III).

TABLE I. — INDICATIONS FOR MEDIASTINOSCOPY IN 82 PATIENTS

DISEASE	NO. of PTS.
BRONCHOGENIC CARCINOMA	51
OTHER MALIGNANT NEOPLASM	3
BENIGN TUMOR	2
GRANULOMAS	10
HISTOLOGICAL LYMPH NODE (Pneumonitis, Etc.)	16
TOTAL	82

TABLE II. — LYMPH NODE AND OTHER FINDINGS IN 82 MEDIASTINOSCOPIES

INDICATIONS			No. PTS.
BRONCHOGENIC CARCINOMA			51
Positive	20		
Negative	31		
OTHER MALIGNANT NEOPLASM			3
Hodgkin's	2		
Ca Thyroid	1		
BENIGN TUMORS			2
Thyroid	2		
(Incidental thyroid nodules — 2)			
GRANULOMAS			10
Cocci	3		
Sarcoid	4		
Silicosis	3		
HISTOLOGICAL or INFLAMMATORY NODES			16
Obstructive PN		8	
Cocci SNB		)	
Pul. Fibrosis Biopsy		) 8	
Pneumoconiosis (X-ray)		)	
Radiation Fibrosis (X-ray)		)	
TOTAL			82

TABLE III. — CONCOMITANT MICROSCOPIC PATHOLOGICAL FINDINGS IN GROSSLY NEGATIVE SCALENE LYMPH NODES EXAMINED AT MEDIASTINOSCOPY

	No. Pts.
POSITIVE for CA	6
POSITIVE FOR GRANULOMA	4
NEGATIVE	72
TOTAL	82

Mediastinoscopy not only obviates the need for many fruitless thoracotomies, but increases the resection rate for bronchogenic carcinoma from 60% to about 90%.[6] Under ordinary circumstances, and judged by accepted criteria, only 60%[7] of cancers are usually found resectable. Mediastinoscopy has the additional advantage of evaluating massive mediastinal spread with direct invasion of major mediastinal structures and the unique quality of determining contralateral spread which renders the patient nonresectable. The incidence of obtaining positive tissue diagnosis at mediastinoscopy in patients with bronchogenic carcinoma is about 35%, although figures of 40% to 80% have been reported.[7] When resectability rate is increased the incidence of lobectomy over pneumonectomy is increased. In a study reported by Reynders[8] of 137 cases of lung cancer, a diagnosis was obtained by mediastinoscopy in 60% of those with a central lesion on x-ray examination, 50% of those in whom atelectasis or a poorly defined lesion was present, 10% of those with peripheral lesions, and 7% with coin lesions. (Table IV).

TABLE IV. — CORRELATION OF LYMPH NODE FINDINGS AT MEDIASTINOSCOPY AND PROCEDURES PERFORMED IN 51 PATIENTS WITH PROVEN CARCINOMA OF THE LUNG

	Pts. Neg. Nodes (31)	Pts. Pos. Nodes (20)
RESECTABLE	14	2
NON-RESECTABLE	17	
EXPLORATORY THORACOTOMY (2 deaths C. A.)	10	
NOT OPERATED OTHER REASONS	7	18
Extent of Disease — Distant Metatasis C. R. Etc.		
GLANDS NEG. at OPERATION	5	
GLANDS POS. at OPERATION	9	
Hilar	6	
Med.	3	

A question of primary interest is whether by means of mediastinoscopy patients can be chosen for curative operations. Palva et al[8] in 1969 reported their experience with 42 patients with negative mediastinoscopy and negative findings in the mediastinal and interlobar glands at surgery. Eighteen, or approximately 40% of the patients were alive after five years. This is similar to the results reported by Nohl[9] in 1962 and Bergh[10] and Scherstein in 1964. Palva[11] also observed that a control group consisting of cases judged resectable from a mediastinal examination but not operated on for other reasons, received either radiotherapy or chemotherapeutic agents or both, but all died during an observation period of less than 5 years and only an occasional patient lived beyond two or three years. By the same comparison, patients with positive mediastinal biopsies subjected to palliative resection or exploratory thoracotomy did not survive two years.

From various studies it can be concluded that the patients with negative mediastinal biopsies have the best chance of having curative resections performed. It is also evident unfortunately that some cases showing no mediastinoscopic contraindication may prove non-resectable because the lesions have extended to the pericardium, great vessels, esophagus or related areas that cannot be recognized at or lie beyond the limits of mediastinoscopy.

In a group of patients with positive mediastinal nodes, curative resection is only rarely and exceptionally possible. Resection should not be attempted if there are metastases in the nodes or mediastinum from an anaplastic carcinoma since at this stage the condition is beyond surgical control. A similar situation exists in the direct spread of carcinoma into the mediastinum, at which time on medastinoscopy one encounters fixed nodular masses extending into the areas observed or explored.

MATERIAL AND TECHNIQUE

Eighty-two patients with undiagnosed intrathoracic lesions or with suspected bronchogenic carcinoma from clinical observations underwent a triple procedure of bronchoscopy, mediastinoscopy and scalene node biopsy at the same sitting. (Table V).

TABLE V. – THE BRONCHOSCOPIC FINDINGS IN 51 PATIENTS UNDERGOING MEDIASTINOSCOPY WITH KNOWN BRONCHOGENIC CARCINOMA

	Neg. Med. Nodes	Pos. Med. Nodes
BRONCH. POS	11	7
BRONCH. NEG.	20	13

With the patient under general anesthesia, a preliminary bronchoscopy was performed with a biopsy of any obvious lesion or biopsy of the related bronchus leading to the area of involvement. If the carina appeared broadened, this likewise was biopsied. At the same time, if possible, the bronchus was cannulated and irrigated and aspirated or blind aspiration obtained with irrigation of the related bronchial tree. The bronchoscope was then replaced with an endotracheal tube and the patient, under controlled ventilation, was positioned on the table with a firm roll under the shoulders and the head hyperextended. An incision was then made over the scalene area on the side of involvement with removal of the scalene fat pad and related nodes. If the nodes appeared suspicious, frozen section was obtained and if positive for malignant neoplasm or if they yielded the particular diagnosis sought, the procedure was terminated with the scalene node biopsy. However, if the results proved negative, the incision was extended across the midline in a curvilinear manner and into the opposite neck area to a lesser degree. A skin flap was developed inferiorly and the strap muscles spread in a vertical plane and the pretracheal fascia opened below the thyroid isthmus. To this point the operation resembled that done for tracheostomy. The finger was then passed along the anterior surface of the trachea into the mediastinum where the areolar tissue allowed easy digital dissection to the level of the carina and the paratracheal areas. At this stage, paratracheal lympth nodes or masses invading the mediastinum can be palpated or other suggestive or gross abnormalities noted. Often under direct vision into the dissected area one can biopsy or remove a node or sample the observed masses. It is thought by most examiners that any positive evidence of metastatic neoplasm in the upper confines of the anterior mediastinum offers evidence of inoperability particularly for a curative procedure.

After initial exploration with the finger and direct observation into the mediastinum, a mediastinoscope was then inserted and the dissection continued laterally from the trachea and anteriorly as well down to the main bronchi using blunt dissection, with sponges, closed-end sucker tip and blunt forceps. Numerous structures including the pulmonary arteries, the azygos vein, the bifurcation of the trachea, and the subcarinal nodes were usually identified. Others who have elaborated on the procedure report sighting the right vagus nerve, the left recurrent laryngeal nerve, esophagus, and in all instances the aorta and innominate artery were easily palpated and visualized, and the carotid artery on the left was palpable.

By using the trachea as a landmark and by dissecting close to it, exploring the paratracheal areas with caution, the risk of injury to the plurae, great vessels, thoracic duct and relater structures was minimized. Damage to a major blood vessel can be avoided by needle aspiration of questionable structures. Local bleeding or ooze can be controlled by tamponade with sponges or hemostatic agents such as gelfoam or surgicel may be used. Cautery combined with a sucker apparatus offered a convenient instrument in such a location.

COMMENT

Indications for mediastinoscopy are to obtain a diagnosis by inspection and tissue biopsy of enlarged mediastinal lymph nodes or other masses not diagnosed by other means. Both non-malignant and malignant lesions are frequently accessible to a mediastinoscope. The procedure may serve as a useful method of determining resectability of lung cancer by direct palpation, visualization and biopsy of the areas lateral to the trachea, subcarinal region, proximal mainstem bronchus and surrounding structures. The procedure is useful especially in seriously ill patients who cannot tolerate other major efforts in the diagnosis of their disease and where one wishes to avoid thoracotomy. Superior venacaval syndrome is not a contraindication to study and under such conditions mediastinoscopy is usually rewarding in determining the cause of venacaval obstruction.

Mediastinoscopy is limited in fully determining the spread of lung cancer since the procedure neither allows access to the posterior mediastinum nor is it possible to detect intrapericardial spread of the neoplasm. The tumor can be inoperable and still not present into the areas accessible to the mediastinoscope or exploring finger.

The risk of mediastinoscopy in terms of morbidity or mortality are surprisingly low. In fifteen reports in the literature the incidence of complications in more than 4,000 cases was 1%, which included excessive bleeding in one patient with a perforated aorta necessitating mediasternotomy for control, temporary or permanent recurrent laryngeal nerve paralysis, subcutaneous emphysema, pneumothorax, perforation of an esophageal traction diverticulum, chylothorax, mediastinitis, wound infection, and seeding of an an incision with a tumor. Fatality related to mediastinoscopy is indeed uncommon, with an incidence of only .2% in over 4,000 cases reported in the literature. Deaths reported were related to an extension of malignant disease, pneumothorax, myocardial infarction and pneumonia.

In the series reported, one major complication occurred in a patient who subsequently at thoracotomy, because of bleeding from a tear in the azygos vein, was found to have inoperable cancer of the lung. At the time of the incident, bleeding was not controlled with packing and thoracotomy was immediately performed. It was then found that had the mediastinoscopy been able to continue, evidence of inoperability would have been firmly established. The patient made an uneventful recovery from the exploratory thoracotomy and control of the bleeding site which resulted from a tear related to invasion of tumor into the azygos vein and related structures.

In addition to aiding in the diagnosis of cancer, mediastinoscopy is valuable in diagnosing granulomatous diseases of the lungs and mediastinum. Positive findings for sarcoidosis within the mediastinal lymph nodes has been reported as high as 90% by the use of mediastinoscopy. The incidence of positive findings are much less with scalene node biopsy.

Our experience with patients suspected of having a granulomatous disease revealed 4 patients with sarcoidosis, 3 patients with coccidioidomycosis, 3 patients with silicosis and 16 patients with undiagnosed inflammatory lesions. The determination of operability in cases of lung carcinoma is perhaps the greatest usefulness of the procedure. If mediastinal nodes are involved with carcinoma, thoracotomy may be avoided in most instances, and with a hint of some success attributed to various types of x-ray, cobalt and similar treatment, these cases may be directed to the clinician interested in such therapy. Also, one may choose to radiate such a patient before operating. Such findings are usually considered evidence of inoperability and certainly would lend less hope for a curative procedure. Not all surgeons agree that such findings represent categorically inoperable cancer because it is well known that an occasional patient does survive five years or more even in the face of finding mediastinal lymph nodes involved with cancer when pulmonary resection has been accomplished.

In most series, approximately one-third of all patients with presumably operable lung carcinoma are found to have mediastinal node involvement at mediastinoscopy. Van Der Schaar and VanZanten[12], reported a series of 122 patients with lung carcinoma subject to mediastinoscopy. Metastatic carcinoma was found in 28 patients, or 22%, 9 of whom had undergone exporatory thoracotomy. Pierson[13] in a series of 38 patients with apparently operable bronchogenic carcinoma did not consider 31% suitable for a curative resection because of positive mediastinal nodes. In a combined series of Reynders[14] totalling 261

patients with presumably operable lung cancer, mediastinoscopy disclosed positive lymph nodes in 34%. In Bergh's[10] series of 180 patients with bronchogenic carcinoma, 54 — or 30% had mediastinal metastases demonstrated by mediastinoscopy. Negative findings of mediastinoscopy were confirmed by thoracotomy in 80% of these

In most series, scalene node biopsy has been disappointing in predicting operability of bronchogenic carcinoma. These nodes may show no evidence of metastatic disease but metastasis may be present in the mediastinal lymph nodes. Reynders[6] describes seven series totalling 223 patients with negative scalene nodes, with 47% found to be non-resectable. At the same time scalene node biopsy is not without dangers as indicated by Skinner's[15] report wherein the incidence of major complications was reported at 4.8% and the total complication rate of 9%. There were 5 deaths in 186 cases with the biopsy directly responsible in two and indirectly in three. Trinkle[16] et al in 1968 performed mediastinoscopy and compared it with bronchoscopy and scalene node biopsy as well as cytology in 155 patients. They concluded that with mediastinoscopy the incidence of tissue diagnosis and definition of operability in patients with intrathoracic malignancy was superior to bronchoscopy and scalene node biopsy performed on the same patients. Mediastinal biopsy was positive in 34% of their patients with intrathoracic malignancies. In the same group, scalene biopsy was positive in only 12% and bronchoscopy in 27%.

Mediastinoscopy has been used therapeutically with efficacy to remove superior mediastinal cysts, for right thoracic vagotomy to relieve painful hypertrophic pulmonary osteoarthropathy associated with inoperable right-sided lesions, and for implantation of a right atrial pacemaker electrode[17]. Placement of atrial wall electrodes when applying an atrially-triggered pacemaker unit in patients with intermittent heart block has also been performed by Carlens[18]. Technically the procedure was carried out in a manner similar to performing a mediastinoscopy and on reaching the right branch of the pulmonary artery the electrode is placed in the thin layer of connective tissue between the posterior wall of the atrium and the esophagus. Carlens commented that even in poor surgical risks there is little deleterious strain or effort on such candidates for synchronous pacemaker treatments.

Kirschner[19] et al reported on 21 patients with myasthenia gravis, having undergone transcervical total thymectomy. He commented on the procedure being an outgrowth of one's familiarity with the technique of mediastinoscopy. He emphasized the advantages of a brief, bland postoperative course and simplified management of myasthenia by avoiding a large painful chest-splitting sternotomy incision.

CONCLUSIONS

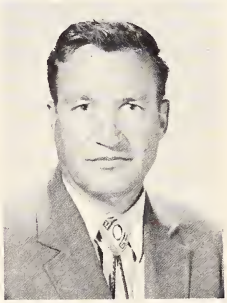
Anterior cervical mediastinoscopy or mediastinotomy can be carried out safely in even poor-risk patients with rarely any mortality and only a few minor and very infrequent major complications. The incidence of tissue diagnosis and definition of operability in patients with intrathoracic malignancy is far superior to bronchoscopy and scalene node biopsy performed in the same group of patients. The procedure is rewarding in making a diagnosis of granulomatous diseases of the intrathoracic structures and may be used for other therapeutic purposes as described. If clinically suggestive or palpable scalene nodes are present, they are biopsied in preference to performance of a mediastinoscopy, but it is felt that mediastinoscopy is superior to so-called blind scalene node biopsy.

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In a retrospective analysis of full-term infants manifesting cerebral hypoxia during the neonatal period in a private hospital about two thirds of the cases were found to be due to the hazards inherent in the management of prolonged labor and difficult delivery. Frank cerebral hypoxia in the full-term infant has been estimated near 1%. Although these infants are not candidates of "major league brain damage" (severe mental retardation and cerebral palsy) their morbidity portends mental defects appearing years later (defects in reading, hearing, and learning, as well as personality and behavior abnormalities). Improved obstetrical management with the more frequent use of Cesarean section delivery might have been of value in preventing much of this morbidity.

CAUSES OF CEREBRAL HYPOXIA IN THE FULL-TERM INFANT



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"Infant neonatal morbidity and mortality has not paralleled the dramatic improvement in maternal mortality and morbidity. A continuing reassessment of the Obstetrical factor is necessary, if these statistics are to be improved."

In the not too distant past, obstetrical emphasis was directed toward the prevention of maternal deaths. Indirectly and quite by accident, this emphasis led to a noteworthy reduction in perinatal mortality. Prompted in part by the results of this example of serendipity, an evolution in obstetrical teaching emerged. From a highly technical or mechanical orientation has evolved a more complex medical and endocrinological orientation. The obstetrician previously discussed the use of different forceps, bags, bougies, operations and treatment-methods for high risk mothers; now, he discusses several complex approaches to the high risk infant as well.

In the face of improved obstetrical care, there exists a disparity in maternal-fetal outcome which defies apparent alteration. Infant mortality and morbidity has not fallen in the same degree as in the mother.[12, 17] The hazards of being born are appreciated by frequently reported statistics. For example, 3.5% of our population dies in the perinatal period, and 7% of our newborn babies are found either damaged or defective.[10] In the refinement of obstetrical care the dividends of extensive research have been great, yet the present level of our knowledge has failed to resolve certain obstetrical enigmas. Prophylaxis of prematurity and unexplained newborn deaths continues to defy analysis by the microscope and test tube. Prematurity is responsible for a greater fetal loss than all other complications of the second and third trimesters of pregnancy and the neonatal period.[16] Combine prematurity with idiopathic newborn deaths and the effect in carnage is awesome, representing over three fourths of

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perinatal wastage.[5] Their combined lethality becomes even more impressive when it is realized that perinatal wastage is the third highest cause of death in the United States.[12] Reduction of the fetal hazards inherent in the birth process remains our most formidable task.

An over exposure to despair is engendered in the obstetrician by his frequent confrontation with these enigmas. The state of frustration is easily construed an obstetrical defeat by the apparent immutability of these enigmas. With the aid of a computer, Page recently made an assertion, which if true, seriously limits the conversion of obstetric defeat to a reproductive victory.[18] He stated that we may alter these tragic results by only about 25% improvement with ideal obstetrical management. In other words, improving the existing level of obstetrical care in every way possible would affect about 25% reduction in perinatal mortality.

On the other hand the number of newborns that are found to be damaged or defective is twice as great as the number that dies. In this morbid group of surviving infants the standard of obstetrical practice would seem to be of paramount importance. This would be especially true in the full-term constituent. Unfortunately an undetectably large segment of the morbid group of infants, and one which probably represents a vast wealth of learning, is not being studied. Of the estimated 2% of surviving infants with neonatal manifestations of cerebral hypoxia and obstetrical trauma, an inestimable number probably reveals the residium of the fetal hazards inherent in the birth process years later.[10,1] From the discussion in this article can be seen recent evidence which suggests that the cerebral disturbances provoked by birth trauma are subtle, for the most part, until years after delivery. In the full-term infant the incidence of frank cerebral hypoxia and/or obstetrical trauma has been estimated near 1%. In a similar study, two thirds of the cases manifesting cerebral hypoxia and trauma in the full-term infants were the direct consequences of prolonged labor or difficult delivery.[11] In this group of morbid infants lies the primary interest of this article.

The purpose of the present study is to elucidate the possible relative role of the deficiencies of obstetrical practice in the production of cerebral hypoxia in the full-term infant in a private hospital. Neonatal sequelae of these processes were investigated in a consecutively delivered population at St. Joseph's Hospital, Phoenix, Arizona. The incidence, probable primary cause, and factors associated with these conditions were analyzed. No attempt was made in this pilot study to correlate perinatal morbidity to prematurity or immaturity, two cardinal areas where cerebral hypoxia and obstetrical trauma have far reaching implications. Excluded from this study was evidence of congenital anomalies, acute, severe toxemia of pregnancy, Rh sensitization, hemorrhagic complications, excessive multiparity (para 8 and above), and multiple births, most of which are maternal conditions which may be regarded as clinical indeces bearing a threat to fetal welfare. Of the approximately 1% of the obstetric population which is actually or potentially diabetic,[22] only known diabetic patients were excluded. Because of the limited magnitude of case studies and many yet immeasurable and intangible factors, no statistical analysis was attempted. During the span of this study, approximately 10% of the deliveries occurred on the clinic service and no comparative evaluation between private and ward patients was made. With the advent of computer analysis it is hoped that studies of this type will provide a sensitive index of the standard of obstetrical care in the near future.

MATERIAL AND METHODS

The subjects consisted of 246 affected full-term infants from a series of 11,061 full-term live births at St. Joseph's Hospital during 1963-1965. See Table I (includes Cesarean section and midforceps rates for comparison).

TABLE I

1. No. of births	11,861
2. No. of full-term	11,061
3. Cesarean section rate	4.5%
4. Midforceps rate	2.7%

The affected infants had one or more of the following conditions:

1. *Severe cerebral hypoxia* — Infants who had an Apgar score of 4 or less at one minute or five minutes of age. Positive pressure resuscitation was required for at least 3-5 minutes before the onset of sustained respirations.

2. *Cerebral depression* — Infants who had severe depression and/or irritation for usually 24-48 hours after birth, unrelated to coexisting disease.

3. *Convulsions* — Infants who had one or more generalized seizures during the first week of life.

The obstetric and neonatal charts of each af-

fected infant were reviewed. Specific obstetrical complications were researched, particularly prolonged labor and difficult delivery in the full-term infant. Included in the prolonged labor group were cases of the following: labors common to primipara and multipara lasting longer than 15 hours where secondary arrest of labor or secondary uterine inertia seemed apparent, and in whom consultation and/or treatment were delayed (after 2 hours). Trial of labor was considered prolonged when it exceeded 6 hours before a Cesarean section was performed for cephalopelvic disproportion.. Complications of delivery which may have been related to cerebral disturbances in the full-term infant included midforceps, breech delivery, shoulder dystocia, malpresentation and failed forceps. All full-term breech deliveries were considered to be portent of cerebral hypoxia or trauma, but only those where difficulty or delay were encountered were included in this study.

Control figures for a comparative analysis were obtained from 3720 unaffected full-term infants (over 2500 Gm.) delivered during 1962-63.

RESULTS

Incidence of Cerebral Disturbances

Cerebral disturbances were recorded in a total of 173 infants (17 per 1000 live births). Most of these infants fit into the category of severe cerebral hypoxia. Of this number, 112 occurred in the full-term infant.

TABLE II
Incidence of Cerebral Disturbances

Number of full-term live births — 11,055	No.	%
Cerebral Disturbances:		
Total number of affected infants	112	1.0
Severe cerebral hypoxia	68	0.48
Cerebral depression and irritation	52	0.44
Convulsions	12	0.11

Causes of Cerebral Disturbances

Since the causes of all three types of cerebral disturbances were similar, they are considered together.

TABLE III
Causes of Cerebral Disturbance

Number of affected infants	112
Complications of Labor:	
Prolonged labor, no fetal distress	6%
Prolonged labor, fetal distress	23%
Prolonged trial of labor	14%
Unexplained fetal distress	11%
Total	54%
Complications of Delivery:	
Midforceps delivery	19%
Shoulder dystocia	6%
Breech delivery	19%
Malpresentation	2%
Total	46%

From Table III the most frequent specific causes of cerebral disturbance in the full-term infants were prolonged labor, midforceps delivery and breech delivery, these together accounting for over one half of the cases.

ASSOCIATION BETWEEN OBSTETRICAL COMPLICATIONS AND CEREBRAL DISTURBANCES

Although no statistical analysis was undertaken, a comparison was made between full-term infants with cerebral disturbances and unaffected full-term controls. The following differences were noted:

Prolonged labor or prolonged trial of labor was noted in 43% of full-term infants with cerebral disturbances and in only 5% of the unaffected full-term population. Midforceps delivery, breech delivery or other malpresentation occurred in 46% of full-term infants with cerebral disturbances, but in only 9.5% of the controls.

TABLE IV
Incidence of Obstetrical Complications in Infants with Cerebral Disturbances and in Controls

	Full-term Cerebral Disturbances	Control
Number of infants	112	3720
Prolonger labor, no distress	6%	3.5%
Prolonged labor with distress	23%	1.2%
Prolonged trial of labor	14%	0.4%
Midforceps delivery	19%	5.2%
Shoulder dystocia	6%	0.5%
Breech delivery	19%	3.4%
Malpresentation	2%	0.4%

ASSOCIATION BETWEEN OTHER OBSTETRICAL FACTORS AND CEREBRAL HYPOXIA

In primiparous mothers, in elderly mothers, and in male infants there appeared to be an increase in the incidence of cerebral disturbances.

TABLE V
Association Between Other Obstetrical Factors and Cerebral Disturbances

	Pop.	Incidence of Disturbance No.	%
Parity: primiparity	3485	52	1.49
multiparity	7570	60	0.79
Sex: male	5602	69	1.23
female	5453	43	0.79
Maternal age:			
primipara: 35 and over	116	5	4.30
up to 34 years	3369	42	1.25
multipara: 35 and over	1126	25	2.22
up to 34 years	6444	40	0.62

NEONATAL MORTALITY

The neonatal mortality rate among full-term infants with cerebral disturbances was 5.4%, a rate thirty times greater than the neonatal mortality rate of 0.18% among unaffected full-term infants.

Of the 112 full-term infants who had cerebral disturbances six died in the neonatal period. Two

died from skull fractures associated with traumatic breech deliveries. Two infants died where prolonged labor was apparent; one with prolonged trial of labor and difficult midforceps delivery, and one with meconium aspiration which occurred in association with oxytocin stimulation. The sixth died from a large subdural hemorrhage, cerebral edema and a tentorial tear resulting from prolonged labor and two failed forceps application. Of the total full-term neonatal mortality during this period, 27% were accounted for by the six deaths of this affected group.

COMMENT

From the literature emanate divergent opinions which either incriminate or vindicate the possible etiological role that birth trauma plays on the livelihood of the newborn. Much of the literature has been concerned with cerebral palsy and severe mental retardation as affected by obstetrical trauma.[13, 14, 15, 16, 20, 21] In studying this problem vast amounts of money have been spent in elaborate forward and backward-looking studies. The popular trend is the prospective study, but both types have taken on added significance since the age of the computer. Consequent to pools of information, the small numerator problem in statistics can be more realistically researched.[18] To offset the dangers inherent in taking conclusions for granted from small study series, the welcomed trend is toward registries of pooled information.[19] Small numerator problems need huge denominator study groups for which the computer is instrumental.

Cerebral hypoxia has been well assessed to have a direct causal effect on cerebral palsy and severe mental retardation.[1, 2, 3, 4, 8, 9] In the production of cerebral hypoxia the degree of influence exerted by traumatic obstetrical procedures, however, has not been so well assessed. In this regard a detectable change in thinking has been provoked by the computer analyses. Prior to these analyses many studies of children with cerebral palsy attest that the birth of these children had a higher incidence of traumatic obstetrical complications[1, 4, 8, 12] and also a higher incidence of neonatal cerebral disturbances[3, 9, 20] than normal control infants. In the majority, however, the injury is apparently temporary and reversible, cerebral function recovering completely.[1, 6] Other studies have suggested that direct trauma to the brain is probably uncommon, brain damage in traumatic deliveries usually being due to associated hypoxia.[7] Recent evidence does not take issue with the fortuitous overlap of trauma and cerebral hypoxia. But the villanous role given to the obstetrician in the past has been minimized in the production of cerebral palsy and severe mental retardation.[18, 19]

Recent evidence minimizes the role of cerebral hypoxia produced during labor and delivery in incurring severe cerebral injury. To incur cerebral palsy or severe mental retardation, apparently longer term hypoxia or more frequent episodes of hypoxia than occurs during labor or delivery are necessary.[23] Hellman has referred to the effects of long term and short term cerebral hypoxia as "major and minor league."[18] For the most part those that occur during labor and delivery, whether spontaneous and/or traumatic, have been shown to produce minor league cerebral disturbances. In the minor league he places cerebral disturbances manifested after long term follow-up studies, i.e. defects in reading, hearing, and learning, as well as personality changes and behavior abnormalities. In the major league he chooses to classify severe mental retardation and cerebral palsy. The "Major Leaguers" are usually institutionalized and the "minor leaguers" remain a part of the community. Continuing a transcending role in the causation of major league damage is the protagonist, prematurity. Similarly, minor league disturbances are for the most part the product of prematurity. However, if we divorce the role played by prematurity in the causation of minor league disturbances, the protagonist becomes deficiencies that may be found due to obstetric practices.

In this study and similar reports[11, 22, 25] it seems apparent that cerebral hypoxia in the full-term infant is consequent to the complications of prolonged labor and/or difficult delivery in nearly two thirds of the cases. It is not difficult to presume that there is a vast reservoir of humanity contained in the community with minor league brain damage. Nor is it difficult to presume the magnitude of responsibility the obstetrician has to the consequences of this league. Tantamount to this responsibility is the improvement of our technics and treatment methods of prolonged labor and difficult delivery.

Since most labors progress quite normally, there are only a few cases where prompt diagnosis and institution of treatment becomes critical. Yet in this regard, the material presented in this study seems full of all-too-common obstet-

ric misfortunes. The concept of where normal labor ends and abnormal labor begins is at best nebulous. However, we often delude ourselves into believing that any progress in the intensity, frequency, or duration of contractions, or in cervical dilatation or effacement, or in descent of the presenting part, no matter what the price in time, is adequate until it is too late to correct a dangerous situation. Perinatal morbidity and mortality has been shown to increase markedly after 15 hours of labor.[20] Results have confirmed the appalling fetal loss consequent to long periods of completely arrested labor. In the prodromal stages of labor periods of rest through sedation have difinite value, but satisfactory rest is rarely obtained if labor has progressed beyond five cm. dilatation of the cervix. To teach that the sun should never set twice on any labor is undoubtedly true, but this recommendation is probably too lax. A multipara who reaches 6 cm. dilatation of the cervix in 2 hours and remains there for another 2 hours needs consultation; a primigravida who develops secondary uterine inertia and makes no progress in 2-3 hours needs re-evaluation and further consultation, post haste.

A trial of labor is not to be considered a "squeeze play." Similarly a trial of midforceps is not to be considered a "squeeze play." Many large surveys[20, 25] have shown that the underlying cause for an increase in fetal mortality and morbidity with breech delivery at terms is unrecognized fetopelvic disproportion. Borderline disproportion seems to assume a major role in the production of prolonged labor and difficult delivery of the full-term infant. Its contributory role in the production of cerebral hypoxia might conceivably be eliminated by a more judicious use of Cesarean section. If it had been possible to predict the events in the two thirds of the cases where cerebral disturbances were consequent to prolonged labor or difficult delivery in this study, and abdominal delivery was used to avoid them, the Cesarean section rate would have been increased by only 0.7%. There is no reason for pride in squeezing a compromised infant through, and thereby preventing a Cesarean section.

In this private hospital the midforceps rate was 2.7% compared to a Cesarean section rate of 4.5%. Cosgrove estimated that a reasonable incidence of midforceps should be not more than one half the incidence of Cesarean sections.[24] About 6% of an apparently reasonable midforceps rate were implicated in this study as causative factors in the production of cerebral hypoxia in the full-term infant.

On the strength of the experience gained during this investigation, the following recommendations may also be made. Anticipation of obstetrical difficulties in the full-term infant must start with a careful evaluation by an experienced obstetrician. Progress of labor should be accurately monitored by hourly assessments. The attendance of an experienced obstetrician at all complicated deliveries or when the fetus is at high risk should be routine.

It is suggested that in many ways these causes of surviving infants that are morbid provide a more sensitive index of obstetrical practice than that obtained by review of perinatal deaths alone. Their incorporation into the monthly Pediatric-Obstetric Conference in perinatal mortality is recommended.

SUMMARY

From this study it appears that efforts to reduce the incidence of cerebral disturbances in the full-term infant should include concentration in the following areas:

1. Earlier recognition of compromised fetal status and more frequent consultation in prolonged labor.

2. Attendance of an experienced obstetrician at all complicated deliveries.

3. More liberal use of Cesarean section in women with borderline disproportion.

4. The monthly interdepartmental conference on perinatal deaths should become a perinatal mortality-morbidity conference.

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SPINAL CORD INJURY
NEGLECTED DISEASE OF MODERN SOCIETY

The National Academy of Science has recently dubbed spinal cord injury as a neglected disease of modern society. Most spinal injuries are incomplete initially and there is also pathological evidence to indicate that early definitive care may protect the spinal cord so that the lesion will not progress and may even absorb. However, the problems are multiple, including: 1) prevention of accidents, 2) expert first aid and transportation of the injured, 3) communication from the site of injury and while en route to the definitive acute treatment center, 4) acute definitive care by appropriate physicians, including recognition and treatment of multiple injuries, shock, bleeding, fracture, etc., 5) acute treatment of the spinal cord injury itself by a neurosurgeon within two to three hours of injury by medical and occasional surgical measures with detailed periodic recording of the neurological findings, 6) early urological and rehabilitation measures, 7) plans within a period of several weeks for definitive rehabilitative measures to return the injured person to his family and economic productivity within four to six months, and 8) periodic reevaluation and medical support in the future.

ARIZONA MEDICINE is publishing in this issue an important original article by John S. Young, M.D. entitled "Development of Systems of Spinal Injury Management with a Correlation to the Development of Other Esoteric Health Care Systems, Part 1." Doctor Young, with the help of the Air Medical Evacuation System of the College of Engineering of Arizona State University, the Barrow Neurological Institute organization of St. Joseph's Hospital and Medical Center, the Rehabilitation Institute organization of Good Samaritan Hospital, and the Division of Vocational Rehabilitation of the State of Arizona, has organized the Arizona Spinal Injury System and this system has not only been approved by national peer investigative groups but has been funded. Funding ($850,000.00 to date) has made possible by very effective support by our Republican and Democratic Senators and Congressmen. It bolsters the private sector of delivery of health services and provides funds for those patients who are unable to finance their own care. The insurance industry is excited about this project because increased effectiveness of treatment can be expected to materially reduce costs. Arizona physicians and their spinal-injury patients are fortunate that Doctor Young came to the right place at the right time. We anticipate publication of Part II of his report in October.

John R. Green, M.D.

President's Page



One of the problems you encounter with this page is the fact you submit your entry one month in advance — this presents certain difficulties in that the subject with which you were at grips with or you had a great emotional response too – may be solved, non-existent or even worse, by the time the Presidents Page sees the light of day.

This fact restricts you somewhat to the philosophical approach or attitude and this to me is very disconcerting. As I feel there are messages that should be given you, and information you should have, so as you can function and understand what is going on in the politics of medicine. This is accomplished in the special mailing edition called Medical Memos. I call your attention to this specifically as this is your most immediate written contact with the Arizona Medical Association.

As I write this today – the presentation of a new concept in Medical Liability Insurance for ARMA has been presented us, but the Board of Directors haven't met as yet to determine the official attitude of ARMA to this program.

By the time you read this, we will have either rejected or embarked on this new and exciting concept. As I have had a great deal of immediate contact with this program and have lived with it since its inception, I hope we have gone ahead and given it a try, as we have the opportunity to completely govern our policy towards this Insurance. I agree with all, that say this is not the entire solution, but first things first. Protection is an absolute necessity while we are striving for legislature to help us. If it will take several legislative sessions to accomplish anything, and I absolutely believe it will, we can't exist without protection in the meantime.

I have examined the AMA's attitude in this regard and believe it is too slow, cumbersome and at this point in time offers no immediate help and no prospect of continuity. Continuity, I feel is the critical thing along with actuarial rates based solely on Arizona Medicine Experience.

As I said in the beginning, I don't know how this program has resolved itself, but I hope by the time you read this, we have or are making a giant stride forward in our own regard.

Fred H. Landeen, M.D.
President

Dean's Page

THE DEPARTMENT OF PHARMACOLOGY

Pharmacology, as an academic discipline, is similar to pathology and microbiology. On the one hand, it may be explored as a pure basic science. Pharmacologists with that orientation analyze the properties and characteristics of drugs, especially at the cellular and molecular level. On the other hand, it may take on a clinical orientation. Pharmacologists with clinical interests test the therapeutic value of drugs in order to bring about effective management of medical problems. The attraction of this latter possibility is very strong. Joined to the additional attraction of a generous financial return, it has drawn many talented pharmacologists into the employ of pharmaceutical houses, thus reducing the number of competent, trained pharmacologists available to the academic community.

From the beginning of our faculty recruitment program, it was clear that the task of identifying exactly the right Department Head to develop our Department of Pharmacology would be difficult. The relative scarcity of first-rate men was a worrisome obstacle. When the College of Medicine had opened and had reached the point where instruction in pharmacology was to be started, the search for a Department Head was still not complete. The course in pharmacology was administered by a committee of the faculty, chaired by Dr. John Palmer, who holds the Ph.D. degree in pharmacology as well as the M.D. degree. Dr. Palmer's primary responsibility, however, was in supervising the Multidiscipline Laboratories. Since this is a full-time occupation in itself, and because the faculty very much wanted to develop a full pharmacology department with the capability of fulfilling its teaching responsibilities to the medical students as well as developing programs of research and service that would benefit the University and the community, the search was continued and brought to its completion a month or two ago. We are confident that we have found the right person to lead and develop our Department of Pharmacology.

Dr. Rubin Bressler will begin his duties as Professor and Head of the Department of Pharmacology on July 1, 1970. Dr. Bressler comes to the College of Medicine from Duke University, where he was Professor of Medicine and Pharmacology, Head of the Division of Clinical Pharmacology in the Department of Medicine and Head of the Division of Pharmacology in the Department of Physiology and Pharmacology.

Dr. Bressler was born in New York City and received his undergraduate education at McGill University. He obtained the M.D. degree from Duke University in 1957 and served a medical internship and medical residency at Yale University. In 1960, Dr. Bressler was appointed a Fellow in Biochemistry at Duke University and subsequently joined the faculty of the Duke University School of Medicine, rising to the rank of professor in 1966.

Dr. Bressler began his research activities while still a medical student, and has published continually ever since, with over 60 publications to his credit to date. His investigations have ranged over many areas, including the mechanisms of fatty acid synthesis, lipid metabolism, the use of insulin and Tolazamide in diabetes mellitus, the effect of diphtheria toxin on metabolism in the heart, and other problems.

Honors and Awards received by Dr. Bressler include election to Alpha Omega Alpha, National Medical Honor Society; the Borden Research Award; a Research Fellowship from the American Cancer Society; the Burroughs Wellcome Clinical Pharmacology Award and, most recently, a Guggenheim Fellowship. Dr. Bressler is a member of the American Federation for Clinical Research, the American Society for Clinical Investigation, the Association of American Physicians, the American Society of Pharmacology and the American Society of Biological Chemists. He was appointed to the Editorial Board of the American Journal of the Medical Sciences and is a member of the Pharmacology-Toxicology Review Committee of the National Institute of General Medical Sciences. Dr. Bressler is also a member of the Executive Committee of the Division of Clinical Pharmacology of the American Society for Pharmacology and Experimental Therapeutics.

The College of Medicine is both proud and pleased to welcome Dr. Bressler to the faculty, to the State of Arizona and to Arizona's professional community.



Medical History

MEDICAL DEPARTMENT OF THE UNITED VERDE COPPER COMPANY

A. C. CARLSON, M.D.

The following article was published in the Mining Congress Journal of April, 1930, and was brought to our attention by Walter V. Edwards, M.D., Medical Director of the Arizona State Compensation Fund. The author was a fine, crusty surgeon, a great individualist, and was President of the Arizona Medical Association in 1928. His description of financing and delivering medical care in an Arizona mining community has both historical and current interest.

I am well aware that opinions differ as to how far the activities of industrial medicine should extend. Personally, I feel that in the cities where a general hospital and specialists in every line are available, the activities of the industrial surgeon should extend only to the occupational injuries and diseases, and to the plant as far as safety and sanitation. On the other hand, in small communities such as we have in Arizona, where as a rule, the community actually exists because of the presence of the industry, the activities should extend to the entire health supervision of the employee and his family. Some critics would call this a combination of industrial and community medicine, but, regardless of what it is called, it is the ideal plan for the mining communities of this state. Industry renders this extensive service at a heavy cost in dollars and cents, but this is actually a sound investment to both employee and employer. The employee, for a small monthly hospital deduction, receives free medical and surgical care, as well as free hospitalization for himself for all conditions, except venereal. For his family he receives free medical care with a 50 percent reduction on hospital and surgery. This health supervision is a problem of human conservation — the conservation of the lives and limbs of the employees as well as the reclamation of the disabled workman in his daily strife. It is the soundest foundation for maximum production of any industry, for aside from its economic value it fosters a sense of loyalty as well as making the men's work more attractive.

The activities of the Medical Department of the United Verde Copper Company in carrying out this program of health supervision are as follows: Physical examination of employee, care of accident cases, medical and surgical care of the employee and his family, hospitalization and infant welfare clinic. Indirectly, the duties extend to the Safety Department through close cooperation with the safety engineer in his work with safety and sanitation. Also cooperation with the Employment Department in reclamation of the disabled, as well as placing newdefective employees at suitable work.

The first activity — physical examination — was primarily instituted to protect industry against the dishonest and unscrupulous applicant who would attempt to collect damages for minor or major defects he had prior to entering the employ. Today, with our present compensation law, this protection is not necessary. However, the true value of this procedure to both employee and employer is appreciated. The examination continues more thorough than at first

and is repeated at periodic intervals. The Medical Department is familiar with the work and working conditions of the various departments. When an employee is found with defects great enough to prevent him from performing the duties for which he was hired, he is either rejected or recommended for work that he is physically able to perform, with efficiency to the company, as well as work which will not further aggravate his condition.

The physically perfect individual is a rare specimen. Some physical fault can generally be found in any one. It therefore becomes necessary to employ men with certain impairments. I will not attempt to classify these impairments, other than to state the problem of placing or rejecting the defective workman depends upon whether the defects are major or minor; whether they are correctable or non-correctable. The major non-correctable case should not be placed in an industry such as mining and smelting. In the majority of cases the minor defects are passed, as well as a certain number of major correctable cases. Often conditions are found that the employee was not aware of, for which either treatment or timely advice is given.

The Care of Accident Cases

The majority of injuries are of a minor nature, principally injuries to the fingers, hands, and toes. In all injury cases, either minor or major, our aim is restoration of the most perfect function possible, striving for the best economic end result as well as medical end result. This treatment is rendered with genuine friendliness and kindness. We want the workman to know that we are sincerely anxious to get the best possible results. The close contacts and friendships develop a feeling of satisfaction and confidence in the employee regarding the care he will receive should he meet with an accident.

Medical and Surgical are of Employee and Family

The employee is given free medical and surgical care, as well as hospitalization for any condition that may develop, except venereal. The family of the employee receives free medical care and free surgical care for minor conditions. Operations are charged for at one-half the regular rate, with a maximum charge of $75.

Hospitalization is furnished the family at $2.50 per day for private room, and $12.50 per week for the ward. All medicines and dressings are furnished free of charge. Many medical men will state the last named duties belong to the family physician. However, in the small community in which we live we are the family physicians to the great majority of our employees. As to the economic side to the employee, it is a comfort to him not to have worries over doctor bills when sickness comes in his family.

Hospitalization

We have a modern institution, three and one-half stories above the ground or basement floor. The building is reinforced concrete construction with hollow tile partitions, metal lath and plaster. On the ground, or basement floor, we have an engineer's room, storage battery room (which automatically cuts in should the regular power line cut out). The emergency lighting system supplies the main surgery and corridors. There is a refrigerator room where we make 200 pounds of ice per day and which also cools the main kitchen refrigerator. Also a boiler room in which we have heat, sterilizing and hot water boilers, water softener and incinerating plant. Adjoining this room is the ambulance entrance, laundry room, locker room and two spacious steam-heated garages. On the first floor we have the outpatient department, waiting room, doctors' offices, large dressing room, fully equipped with a sterilizing unit and pharmacy. Adjoining the dressing room we have a physical therapy department, fully equipped and under the supervision of a capable physical therapy nurse. On this floor we also have the hospital storeroom, main kitchen, nurses' dining room, convalescent patients' dining room, kitchen store room, rooms for kitchen help and porters' utility room. The kitchen is under the supervision of a capable dietician. We also have here a first and second cook, dish washer and combination waiter and cook's aid. The kitchen is equipped with electric range, steam table, electric kitchen aid and toaster. Every endeavor is made to serve food hot, which is done by the electric dumbwaiter, capable of handling 10 trays a trip to all floors. On the second floor the majority of bed patients are cared for in four wards of eight beds each. and two private rooms. Two wards are located on the south end of the building and two on the north. On both ends are glassed-in solariums, furnished with cushioned wicker furniture. The wards are divided into clean surgical, dirty surgical, medical and convalescent. The two private rooms on this floor are adjoining, with bath between. On this floor we also have a treatment

room, laboratory, chief surgeon's office, X-ray department, diet kitchen, history filing room, hopper room, porter's utility and nurses' chart-room. In the laboratory we do the routine work only. All tissue examinations and Wassermann's are sent to outside laboratory. The X-ray department is equipped with a double disc, remote control X-ray machine, a motor driven tilt table with fluoroscopic attachments, all-metal stereoscope and bedside unit. Exposures are filed in metal filing cabinets. This is a very busy department as any injury with any possible fractures, as well as chests in periodical physical examinations, are checked here.

Regarding histories, we comply with the requirements of the College of Surgeons; a complete history being filed for every case.

On the third floor we have a solarium on the south end, 11 private rooms, diet kitchen, hopper room, treatment room and a surgical pavilion on the north end. In the surgical pavilion we have a work and supply room, instrument room, sterilizing room, main surgery, scrub room and delivery room, all completely equipped. The main surgery is tiled with a light green flat tile. The lighting is from skylight and reflected light.

The top half-floor has two sun rooms on the south end, five private rooms, diet kitchen, nursery and hopper room. We place all obstetrical cases on this floor, requiring the patients to supply special nurses.

The total capacity is 52 beds and 5 bassinets. Every bed, solarium, nursery, surgery and doctor's office is equipped with silent call system and convenience outlets. An elevator of sufficient size to easily handle a bed, runs from the ambulance entrance to the top floor. It is impossible to do justice to our hospital with this short description. Our capacity is only 52 beds, which is ample to care for the community, but considering the completeness of the building and equipment, it compares with the best in any of our cities.

The staff necessary to care for this institution and work consists of six doctors, supervisor of nurses, nine general duty nurses, surgical nurse, dressing nurse and physical therapy nurse.

Infant welfare clinics are carried on both in Jerome and Clarkdale. Each clinic is conducted by a nurse with special training in this work, under the direct supervision of a pediatrician. The clinics are open for certain hours each day, the balance of the nurses' time being occupied with home calls. At the clinic, mothers are given formula instruction and taught the care of infant and child of pre-school age. Weights and heights are taken and recorded, diets given, as well as to teach them the value of sun baths and proper clothing. In the home calls, home and personal hygiene are taught, nursing service rendered, as well as formula and baby instructions.

In formula instruction they are taught the care of bottles, nipples and utensils; how to combine and boil the ingredients and the care of the formula after it is prepared.

In baby instruction, the value of breast feeding, the care of the mother to increase breast milk, the care of the mother when weaning baby, clothing, sun baths and the value of checking weights are fully gone into.

The pre-school instruction takes up the necessity of checking weights and heights, diet regulation, proper clothing and proper posture. A complete record is kept of every case that comes to the clinic. This record shows the weight and height, formula, diet, and in all cases seen by the doctor, his findings and instructions.

In home calls, wherever it is necessry, the nurse teaches the value of fresh air, sanitation and cleanliness. In the nursing service she carries out treatment as ordered by the doctor. She is always prepared to take cultures and on the lookout for any contagion, reporting any possibility to the doctor. Instruction on formula and infant care is also given in cases where the mother is unable to come to the clinic.

The object of the medical department is the care of the industrially injured, as well as to supervise and care for the health of the employee and his family. The humanizing influence of this work is a stimulus to seek additional means to further maintain the health, comfort and contentment of the employee. As to the physician in this work, a personality based on friendliness, love and sympathy for his fellow man is just as essential as ability. He must put himself in the place of the injured employee and treat him as he, himself, would want to be treated.

The properly conducted medical department of any industry has an opportunity to protect and maintain health and productiveness, and therefore happiness, of large groups of individuals in a manner almost impossible by other means or connection. This, we feel, is being accomplished by the medical department of the United Verde Copper Company.

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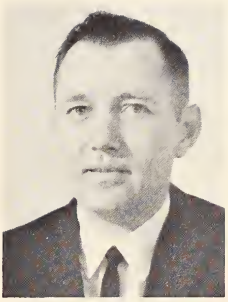
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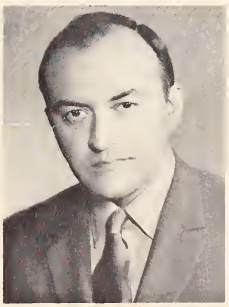
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R. T. McDonald, M.D.
Flagstaff, Arizona

INTESTINAL ISCHEMIA, A CONTINUING PROBLEM

A case of intra-aortic thrombus causing atypical intestinal ischemia with fatal intestinal infarction; A 52-month non-operated survivor with symptomatic celiac axis stenosis.



Darius Behnam, M.D.
Flagstaff, Arizona

The classical case of intestinal ischemia is usually readily suspected clinically when crampy upper abdominal pain, nausea, vomiting and diarrhea occur one half hour to three hours after

eating. The severity of the above signs in relationship to the quantity of food eaten is also helpful in establishing the diagnosis. If this condition has been present for any length of time weight loss usually occurs. Aortographic studies are required to confirm this clinical suspicion. The surgical correction of this lesion in the individual with reasonable general health is not excessively difficult and usually successful if done electively.

How many obscure digestive mal-functions related to intestinal ischemia go undiagnosed because of lack of suspicion is an unanswerable question. The following case serves to illustrate how obtuse some of the symptoms of intestinal ischemia can be.

This 55-year old white female was first admitted to the Flagstaff Community Hospital on November 27, 1963 for vomiting and severe substernal pain. No cause was apparent by history or physical examination for her signs or symptoms. Her past history included severe migraine headaches, requiring weekly injections of Demerol and Gynergen. Many years ago, she had gangrene of the bowel requiring a bowel resection and a right oophorectomy. After four days of intravenous feedings she had improved enough to be discharged on December 1, 1963.

Her inability to swallow and vomiting of what she did swallow became progressively worse requiring re-admission to the Hospital on December 10, 1963. In addition to her previous complaints she now complained of pains in her legs. She was able to tolerate tube feedings and gained weight from seventy-six to eighty pounds. Upper and lower gastro-intestinal series, barium swallow, indirect laryngoscopy, and bronchograms were all interpreted as normal. With the exception of an anemia of 9.2 grams, and a sedimentation rate of 56 mm, per hours; her laboratory tests were normal. She was discharged on December 21, 1963.

On February 15, 1964 she was admitted to a Phoenix Hospital for studies of her dysphagia and the pains in her legs. At this time she complained of crampy lower substernal pain which radiated through to her back. After vomiting she developed severe epigastric pains. Physical examination revealed an extremely thin white female whose abdomen showed only minimal generalized tenderness. Her liver and spleen were not palpable and no masses were palpable. The bowel sounds were normal, and no bruit was heard over her abdomen. Her right knee jerk was diminished. The right ankle jerk was absent with an extensor response on the right. Atrophy was present in both lower extremities.

On two occasions Esophagoscopy revealed a diffuse esophagitis. An esophogram suggested a diffuse process involving the lower two-thirds of the esophagus with narrowing of this area. A biopsy of the esophagus demonstrated only non-specific inflammatory changes. A supraclavicular fat pad biopsy and right gastrocnemius biopsy demonstrated hypertrophy of the skin and non-specific muscle atrophy which was thought to be compatible with early scleroderma. She was seen in consultation by a neurosurgeon. An electromyogram showed diffuse abnormalities also involving the upper extremities. A spinal tap was normal. These findings were thought consistent with a neuronitis involving the anterior horn cells. She was discharged on March 6, 1964 on Prednisone in hopes of improving her esophagitis.

On March 11, 1964 she was re-admitted to the Flagstaff Hospital continuing to suffer from vomiting and spasmodic severe pain in her lower chest when she swallowed. She continued to have leg pains. At this time she was drinking fairly large amounts of alcohol. Physical examination of her abdomen was thought to be normal. She was started on tube feedings and regained sufficient strength to be discharged on March 25, 1964.

She was re-admitted on April 28, 1964 because of continued vomiting. She did not complain of abdominal pain on eating. She had obviously lost weight but the amount was not documented. X-rays of her chest revealed severe emphysema. Physical examination revealed a thin, markedly emmaciated white female. Her temperature was 98° Farhenheit by mouth. Blood pressure was 84/60 mm. of mercury, with a pulse of 82 beats per minute. Her physical examination remained unchanged, with the exception that she was progressively becoming more emmanciated. On this occasion it was noted that she had feeble femoral pulses bilaterally. A VDRL was negative. Her urine showed twenty to twenty-five WBC's in each high powered field with a one plus sugar. Her hemoglobin was 14.6 grams. EKG showed non-specific myocardial damage and hypokalemia. On April 30, 1964, under local anesthesia a feeding gastrostomy was constructed. The pat-

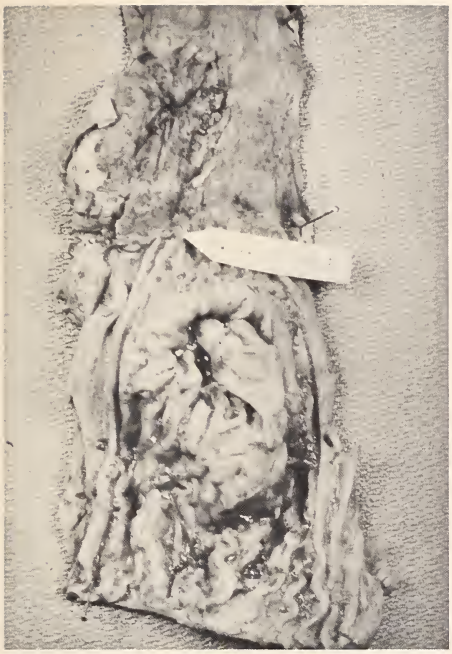


Figure 1:
Autopsy specimen of open stomach and esophagus demonstrating a normal gastro-esophageal junction. The circular area just above the gastro-esophageal junction is an artifact.



Figure 2:
Opened autopsy specimen of abdominal aorta with intra luminal thrombus in place demonstrating origins of the Renal Arteries (RA), Superior Mesenteric Artery (SMA), and Celiac Axis (CA)

ient continued to vomit very soon after food was introduced into her stomach through her gastrostomy. She continued to deteriorate and died on May 15, 1964 having been unable to retain food or fluid given through her gastrostomy tube.

At death she weighed seventy pounds. Postmortem examination, excluding the head, revealed a perfectly normal gastro-esophageal junction. (Fig. 1) A gangrenous mass of bowel was present in her right lower quadrant involving the entire small bowel and colon to the spleenic flexure. Her aorta showed extensive atheromatosis and in the infraenal aorta a large thrombus was found adherent to an ulceration just below the renal arteries. (Fig. 2) This thrombus extended slightly above the level of celiac axis. Microscopic examination of the small bowel revealed no evidence of thrombi or embolism to the vessels of the infarcted bowel.

An intra aortic thrombus certainly must be a rare cause of intestinal ischemia. For some unexplained reason the majority of this patient's symptoms consisted of nausea, and vomiting. Abdominal pain on eating, as usually encountered in intestinal ischemia did not seem to be a major symptom. Apparently this thrombus by a ball valve action decreased the blood supply enough to her intestine that ischemia was present. Ultimately the ischemia became so intense that infarction of the bowel occurred despite anatomical integrity of the intestinal arteries. The weak femoral pulses were undoubtedly related to mechanical plugging of the aorta and should have focused attention on the aorta and its branches. The esophagitis probably was a result of the constant vomiting whenever she tried to eat. It is interesting to note however, at autopsy her esophageal gastric junction had completely recovered and appeared normal with no evidence of stenosis or esophagitis even though she continued to vomit up to the period of death. It is unfortunate that a brain examination was not done to positively rule out a brain tumor causing her to vomit in such a manner. However, her clinical symptoms were of such a nature as not to suspect a brain tumor. On one occasion when she was examined by a neurosurgeon, the possibility of a brain tumor was

not entertained.

Certainly in unexplained causes of nausea or vomiting, or where the cause of gastro-intestinal malfunction is not well substantiated, intra aortic thrombus must be considered and appropriate studies to delineate this condition must be undertaken. It can be seen by the accompanying photographs that the thrombus could have been easily removed by aortic surgery.

What is the fate of a patient with intestinal ischemia who refuses surgical treatment? Since only in this light can surgical treatment of intestinal ischemia be evaluated the following case was thought worthy of publication.

This presentation will detail the fifty-two month survival time of a patient who refused operation for celiac stenosis. A seventy year old white female was first seen on March 24, 1964, complaining of severe crampy abdominal pain of two months duration after ingesting any type of food. She was not aware of any weight loss. Her past history revealed that in February of 1962 she had developed a small ulcer crater on the lesser curvature of her stomach. This subsequently healed with conventional therapy. In March of 1963, she suffered an episode of coronary artery insufficiency and was anti-coagulated with coumadin.

Her physical examination revealed a thin, frail white female whose positive findings were limited to the abdomen. Her abdomen was soft throughout. No organs were palpable. No masses were felt. No murmurs were heard. Moderate tenderness was present in the epigastrium. Her rectal examination demonstrated no masses. The stool was brown in color. Laboratory work consisted of: a urinalysis with a specific gravity of 1.005, negative albumin, negative sugar with eight to ten white blood cells per high powered field, a prothrombin time of fifteen seconds with a control of fourteen seconds, a complete blood count demonstrated 14.6 grams o/o of Hgb, 5,200 white blood cells with a normal differential count. Creatinine was .55 mgm. o/o, bilirubin total of .45 mgm. o/o and a non-reactive VDRL. An EKG was interpreted as showing myocardial ischemia. A barium enema was not done. A translumbar percutaneous aortogram revealed a high grade celiac axis stenosis with post stenotic dilation. (Fig. 3) The patient however refused to accept an operation for her celiac axis stenosis. Consequently, she was treated medically with analgesics, diet and anti-coagulants. She required eight admissions to the Hospital for medical illness prior to her death. On September 22, 1964, the patient was admitted with an episode of acute bronchitis and hemorrhagic gastritis. She continued to have post prandial pain and circumvented this somewhat by eating small meals. She was discharged on September 30, 1964. She was re-admitted again on April 26, 1965 for pericarditis secondary to pneumonitis. She continued to have abdominal pain and nausea poorly controlled by general measures previously described. She required codeine for control of pain. Physical examination of her abdomen revealed generalized tenderness with a bruit present throughout the abdomen. Her discharge date was May 2, 1965. She was again hospitalized on January 18, 1967 for chronic bronchitis, osteoporosis and osteoarthritis. She continued to have chronic abdominal pain and distension with a chronic anemia, a poor appetite and general weakness. She developed memory impairment, somnolence and thick speech. She was discharged on January 27, 1967. She was again hospitalized on March 28, 1967 because of broncheopneumonia and chest pain with dysphagia and blood sputum. Her appetite varied



Figure 3:
Aortographic demonstration of first few inches of celiac axis showing celiac artery stenosis with post stenotic dilitation.

from good to poor and she continued to be nauseated most of the time.She improved on antibiotics and was discharged on April 5, 1967. She was re-admitted on April 25, 1967 with congestive heart failure. Among many other medicines she required Dilaudid 1 mgm. every four hours primarily for relief of abdominal pain. Her physical examination revealed severe malnourishment with a tender distended abdomen. With medical management she recovered sufficiently on May 5, 1967 to be discharged to a Convalescent Home. She was re-admitted on June 7, 1968 because of mental confusion, and lethargy. At this time she required Levo-Dromoran 2 mgm. every six hours for abdominal and back pain. She complained of a poor appetite. Her abdomen remained distended and tender. The bowel sounds were reported as hyperactive. Her hyperuricemia improved with Benemid and Zyloprim and she was discharged to her home on June 19, 1968. She was again admitted on July 2, 1968 with pneumonitis arteriosclerotic heart disease, congestive failure and pleural effusion. She continued to have generalized abdominal tenderness but at this time she had no complaints related to food intake. She was discharged on July 2, 1968 requiring Mepergan for pain relief. On July 20, 1968 she was admitted for the final time. Her admission diagnoses were congestive heart failure, chronic bronchitis and pneumonia. She continued to have a poor appetite, remained mal-nourished and had generalized tenderness of her abdomen. She died on July 22, 1968 despite the usual therapy for congestive heart failure, chronic bronchitis and pneumonia.



Figure 4:
Photo micrograph of section through stenotic area of celiac axis, magnified 430 times demonstrating lack of atherosclerosis with only hypertrophy of the media and intima being present. Intima is to the lower left hand corner of the photo micrograph.
(SMA), and Celiac Axis (CA).

On autopsy she was thought to have died from pulmonary broncheictasis and fibrosis with right ventricular hypertrophy and terminal pneumonia. In addition she had a cortical cyst of her right kidney. Her major arteries were in relatively good condition with the exception of a 50% occlusion of the orifice of the celiac artery. The obstruction was white in color and concentric. It did not have the usual appearance of an atherosclerotic plaque. Histological examination revealed it to be marked hypertrophy of the intima and media of the arterial wall. (Fig. 4)

Though this patient survived fifty-two months with celiac axis stenosis, certainly the quality of the patient's surviving time was very poor. Correction of her stenosis might have obviated the need for hard narcotics and all the complications associated with their use. Adaquate nutrition certainly could have improved her general condition and her ability to resist infection. It would seem in retrospect that her survival time was of such a poor quality that it would have been better to strongly encourage this type of patient to submit to vascular corrective surgery as long as there was some hope of survival to avoid the downhill course of emaciation and death by infection.

SUMMARY: An unusual case of intra aortic thrombus with intestinal ischemia causing intestinal infarction and death is presented. A second case of a fifty-two month medically treated survivor of intestinal ischemia secondary to a celiac stenosis and her ultimate death from pneumonic infection is presented with considerations for arterial reconstruction.

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ILIOFEMORAL VENOUS THROMBOSIS



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The accompanying article points out the indication and technique for iliofemoral thrombectomy. The figures show that over a four year period, in the Maricopa County Hospital, over half the people operated on were benefited by the procedure. 25% had recurrent thrombosis. The operative technique and results of the procedure are described.

The experience with iliofemoral thrombectomy at a county hospital and a review of the problem of iliofemoral thrombosis will be presented.

CLINICAL MATERIAL

Thrombectomy was performed on eleven persons with iliofemoral venous thrombosis over a four year period (March, 1964 - March, 1968) at Maricopa County General Hospital. (Table I)

The average age was 44 years, and the majority were men.

Deep vein thrombosis was recurrent in three persons, occurred postoperatively in three and was related to stasis (paraplegia and hemiplegia) in two. Single incidences were seen in a patient in the post-partum period, in another with an associated malignancy and in one with spontaneous thrombosis.

The majority had symptoms within forty-eight hours of hospital admission; two had symptoms which were progressive for weeks prior to admission. Each patient had a diffusely swollen leg. Tenderness along the femoral vessels was a consistent finding and was present in nine patients. Collateral veins were seen in the lower abdomen in four patients (associated with extensive thrombosis), and cyanosis of the leg was present in two.

All patients had involvement of the superficial and common femoral veins; and nine also had iliac vein thrombosis.

Operative Findings

Patients operated on soon after the onset of symptoms had the characteristic thick-walled, dull-white femoral vein filled with black gelatinous thrombus. The clot was easily extracted and a good flow was obtained. In those persons having prolonged symptoms of swelling, the clot was organized and adherent to the intimal surface, and the flow was sluggish at the end of the procedure.

Results

Of the eleven patients, six had a good response with no residual edema and with good function (the longest follow-up being four years). Two had occasional edema of the extremity, and three had poor results. None had embolization.

One of the latter three patients (Case #10) had persistent edema in the extremity secondary to vena cava thrombosis and femoral vein stasis. The other two (Cases #5 and#7) had chronic symptoms. Each had a prolonged history of leg swelling and pain, and previous episodes of thrombophlebitis in other sites. During the thrombectomy procedure on one (Case #7), the balloon of a Fogarty catheter was evulsed and lost on a distal vessel. Some distal flow was present but a femoral vein plication was done to prevent embolization of this foreign body.

DISCUSSION

Etiology

The cause of iliofemoral venous thrombosis is still unsolved. The primary factors are stasis, infection, hemoconcentration and local intimal damage.[1, 2]

The pathogenesis of post-partum iliofemoral thrombosis illustrates that stasis is a most significant factor. Dependent edema and enlargement of pre-existing varices document venous obstruction in the ante-partum period before rupture of the membranes. The effect of trauma on the pelvic floor along with the physiological hemoconcentration, may cause an abnormal progression of the normal thrombosis, which occurs at the site of placental separation. This clotting migrates in the uterine and hypogastric veins, eventually producing obstruction in the common iliac vein[3].

Patients who undergo surgical procedures, especially in the pelvis, may have a dual source of thrombosis. First is the local operative site, with vascular trauma (for example, thrombosis in pelvic veins following prostatectomy). Secondly, is the clotting in the dependent vessels of the lower extremities, with stasis that may occur in the inactive postoperative patient.

Patients who are chronically debilitated represent a variety of conditions with certain characteristics in common. The patient with a terminal malignancy is a prime candidate for deep venous thrombosis; contributing factors would be dehydration, hypovolemia, sepsis, and stasis from lymphangiovenous obstruction due to tumor. Similar features would be seen in patients debilitated from other causes such as hemiparesis or paraplegia. A patient with the edematous hemiplegic limb has been shown by Haller[4] to have deep thrombosis. The limb was thought to have been edematous because of the loss of the

TABLE I

Case #	Age-Sex	Operation Date	Associated Illness	Duration of Thrombosis	Vein	OPER. FINDINGS Cond. of Clot	OPER. FINDINGS Flow After Clot Removal	RESULTS First Week	RESULTS Later
1.	22 yr. F	3/13/64	Post-Op. Salpino-Oophorectomy	2 days	Left Femoral	Early	Good	Good	Good
2.	16 yr. F	7/15/65	Post-Partum	2 days	L. Ilio-Femoral	Early	Good	Fair	Good
3.	24 yr. M	8/ 5/65	2 mo. paraplegia	? days	L. Ilio-Femoral	Early	Good	Fair	Good
4.	58 yr. F	12/14/66	1 mo. post-pneumonectomy	3 days	R. Ilio-Femoral	Early	Good	Good	Fair
5.	32 yr. F	12/17/66	Recurrent Phlebitis	4 weeks	R. Ilio-Femoral	Organized	Poor	Poor	Poor
6.	53 yr. M	1/ 4/67	Spontaneous	12 hours	L. Ilio-Femoral	Early	Good	Good	Good
7.	53 yr. M	2/24/67	Recurrent thrombophlebitis	1 week	Left Femoral	Organized	Poor	Poor	Poor
8.	51 yr. M	3/ 1/67	Long term hemiplegia	? days	R. Ilio-Femoral	Organized	Fair	Fair	Good
9.	39 yr. F	3/17/67	Migratory Phlebitis	2 days	L. Ilio-Femoral	Early	Good	Fair	Fair
10.	57 yr. F	7/22/67	Far-Advanced Melanoma	3 days	L. Ilio-Femoral	Early	Poor	Poor	Poor
11.	70 yr. M	3/ 7/68	10 Days Post-Cataract Extrac.	5 days	L. Ilio-Femoral	Early	Good	Good	Good

"venous heart". This situation was true in two patients in this report.

Severe trauma such as hip fractures and crushing pelvic injuries could induce iliofemoral thrombosis. In addition to the patients being non-ambulatory, the retroperitoneal hemorrhage, vascular trauma and inflammatory response may be key factors.

Other causes include iatrogenic thrombosis occurring after lengthy intravenous cannulization in the legs,[5,6] and hypercoagulable states found in patients with polycythemia and leukemia. Idiopathic cases are common and may occur in healthy individuals.[7] Repeated bouts of thrombophlebitis could be related to an occult malignancy.

Clinical Features

The clinical features of iliofemoral venous thrombosis are related to two factors; the first being the rapidity of the pathologic process, and secondly, the extent of venous occlusion. The syndromes of deep thrombophlebitis are defined by the clinical appearance of the involved extremity and are directly related to degree of involvement with its resultant patho-physiologic alteration.

The diagnosis of plhegmasia alba dolens can be made with certainty only where there is diffuse edema of the entire extremity to the level of the inguinal area, with tenderness along the femoral canal. Symptoms usually begin abruptly. This acute onset of aching pain in the involved extremity causes difficulty in walking. There is a rapid progression of swelling with local heat and erythema commonly present. The symptoms are the classic signs of inflammation.

Phlegmasia cerulea dolens is a progression in the pathologic process with the swollen leg becoming cool and cyanotic. The symptomatology is usually of longer duration than alba dolens.[8] The throbbing pain may be more pronounced and the edema of longer duration; it may be associated with a greater incidence of numbness and paresthesias. The extremity is greatly swollen, having a tense, glossy skin with the edematous portion having a "woody" consistency. Cyanosis is characteristic, and rapidly extends to the entire extremity with maximum intensity distally. Skin temperature may be normal, but is often decreased. Frequently, a loss of motor power and hyperesthesia are present. Arterial pulses are absent in more than one half of the cases;[8] arteriography shows patency, even though pulses are absent.[9]

Other significant features of cerulea dolens include the poor general condition of the patient. The circulating blood volume may be greatly decreased by the amount of blood clotted in the blue leg, and by edema sequestration. Thus, hemoconcentration dehydration, oliguria and hypotension are seen in this serious illness. With further extension of this pathologic process, one could encounter venous gangrene with swollen areas of ischemic tissue.[9]

Phlebography may be helpful in the patient with chronic symptoms, especially when findings are difficult to interpret.

Indications for Operation

Mahorner has outlined indications for surgical approach to venous thrombosis. They are septic thrombosis, phlegmasia alba or cerulea dolens, occurrence of pulmonary embolism and failure to control progression of symptoms by conservative measures.[10] Depending on the problem encountered, a combination of ligation and thrombectomy may be used. Femoropopliteal phlebitis, ascending superficial phlebitis and situations where anticoagulants are contraindicated have been added to the indications for thrombectomy.[11]

Operative Management

When the diagnosis of iliofemoral thrombophlebitis is made, the patient is prepared for an emergency operation. Whole blood is typed and cross-matched. Pre-medication is given, and the patient is taken to the operating room. Anesthesia may be local, epidural or general. Local anesthesia is quite adequate in most instances because of its safety and maintenance of patient cooperativeness in assisting with the extrusion of clots.

An oblique incision is made over the femoral canal beginning just above the inguinal ligament and extending downward for approximately five inches. The superficial femoral artery is dissected free and retracted with an umbilical tape. The common, deep and superficial femoral veins are isolated with tapes. A longitudinal venotomy is done in the common femoral vein just above the junction of the saphenous. The clot may immediately extrude, followed by a good flow of blood. Gentle, lower abdominal pressure over the course of the iliac vein in conjunction with a Valsalva maneuver (in the conscious patient) will aid clot extrusion. If the proximal flow remains sluggish, a Fogarty venous thrombectomy

catheter is used to clear the vessel of retained thrombus. After satisfactory proximal flow has been created, attention is directed to the distal vessels where the clots are gradually milked out by applying rubber compression bandages (Esmarch type) from toes to groin. The catheter is again used to remove clots and establish adequate flow. After local heparinization, the venotomy is closed, and the wound is closed without drains. Elastic bandage incorporates the entire extremity.

Early ambulation is carried out whenever feasible, and systemic heparinization is maintained for three weeks.

Comment

Attempted removal of a venous thrombus, present for more than one week, is difficult and is followed by poor functional results.[6] Venous thrombectomy without proximal ligation can be done safely[9 12] with minimal fear of embolization.

Thrombectomy for iliofemoral thrombosis is a worthwhile procedure for the immediate relief of pain and it decreases the threat of pulmonany embli and swelling postoperatively.

SUMMARY

Thrombectomy was performed on eleven persons with iliofemoral venous thrombosis over a four year period. The clinical and operative findings were presented. Six persons had a good result, two fair and three poor. The relief of pain was immediate in all but one patient. No embolization occurred.

The etiology and clinical features of iliofemoral venous thrombosis and the indications for operations were discussed. The operative and postoperative care was described.

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Topics Of Current Medical Interest

MEDICARE
PROGRESS AND PROBLEMS

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Gentlemen – I sincerely appreciate the opportunity of appearing before you this afternoon – I wouldn't want you to think that I accepted this as just another opportunity to be away from the State of California during the month of April.

The Medicare program in the United States has passed its third aniversary. It is altogether fitting at this time to stop and take stock, to assess and evaluate the performance and effectiveness of all of the many segments that have had to cooperate and coordinate their efforts toward the effective operation of the program.

Involved in the operation of Medicare, along with the federal government, are 123 private insurance organizations – Blue Cross and Blue Shield Plans and commercial insurance companies, who receive and pay Medicare bills under contract with the federal government, 6,900 participating hospitals, 4,700 participating extended care facilities, 2,550 certified independent laboratories, and the health departments of the 50 different states.

In Arizona, there are 60 participating hospit-

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als, 40 extended care facilities, 9 home health agencies, and 50 certified independent laboratories.

Nationally, as of January 1, 1970, 20.3 million persons aged 65 and over were covered under the basic hospital part of Medicare. Of this number, approximately 19.5 million, or 96 percent of the total, have enrolled in the voluntary supplemental medical insurance part. In Arizona, about 150,000 are covered under hospital insurance, and about 140,000 enrolled in Part B medical insurance.

Under Part B for physicians' services in Arizona, the payments were:

Fiscal Year 1967	$ 6.4 million
Fiscal Year 1968	13.0 million
Fiscal Year 1969	13.2 million
Total	$32.6 million

These figures suggest the size of the program.

What, then, have we gleaned from three years of experience with the program, in addition to reams and reams of statistics, and what problems have we encountered?

One fortunate outgrowth of the program has been the impetus for further development of the concept of alternative levels of care. Until now, most insurance programs have considered the payment of hospital benefits the ultimate in coverage. Now, Medicare has provided coverage in the outpatient area, the extended care facility, the home health agency, as well as the hospital itself. Thus, the Medicare program has made it easier for physicians to choose the level of care most appropriate to the older patients' medical needs.

In considering extended care facility benefits, many physicians and beneficiaries do not understand the exact nature of this benefit under the program. This is one of our current problems. The "extended" in extended care does not refer to an extended period of care in a facility, but rather an extension of the care that was being received in a hospital.

There are five items crucial to a smooth functioning of this phase of the program:

(1) Understanding by the patient and his family of the relatively limited nature of the extended care benefit, and that he is not automatically entitled to 100 days of care in an extended care facility.

(2) A close relationship between the acute hospital and the extended care facility permitting the free flow of medical information necessary for the appropriate care of the patient.

(3) A precise understanding by the attending physician of the extended care benefit.

(4) An effectively functioning utilization review committee.

(5) Availability of competent medical advice to fiscal intermediaries.

It is estimated that more than 20 million people still are not receiving adequate health care. It has been said that the real crisis in health care is that while we are spending some $50 billion a year for health care services in America (about 6 percent of our gross national product), and providing very little in the way of incentives to finding more effective ways of organizing and delivery health care services — millions are still effectively removed from the essential services required to maintain good health.

One of our current problems is determining proper reimbursement for physicians' services, considering the factors of "usual and customary, reasonable and prevailing," terms which lend themselves to definition.

Under Part A of the program, where reimbursement to the provider of services is based upon reasonable costs, there is the problem of the limited accounting capacity to accurately determine and allocate costs. Before Medicare in many institutions, particularly the non-profit, there was little need for a highly sophisticated system of departmentalized cost accounting. Now many of them have experienced considerable difficulty in preparing cost reports acceptable for audit by the fiscal intermediary.

Some small providers, like home health agencies, where the nurses are not accountants, or even bookkeepers, have turned to commercial firms for billing and accounting assistance. One director, in having explained to her the advantages of going on the computer, expressed some misgivings — that she would suffer a loss of operating flexibility, but they assured her that she would have locked-in leeway.

Another problem area is that of the proprietary extended care facility. The administrator may be caught between Scylla and Charybdis — discharge of the patient based upon a physician's or utilization review's determination of level of care, and the financial impact of empty beds — not to mention the sometimes not inconsiderable pressure from the family. And the cost reports of many providers are the subject of much audit negotiation.

Based upon almost three years of experience, we find that we must give more attention to Program Integrity — a polite euphemism for assorted varieties of human facility in the area of financial gain.

We are also concerned with consistency and uniformity in application of the law, that reimbursement for covered services should not be affected by geographical location or the intermediary processing the claim.

One of the most visible and acute problems in health care is rising costs. There are many complex factors. We can readily identify two important causes of this problem.

First, the substantial increase in demand for physicians' and hospital services tend to outrun the supply. Second, as medical research continues to create more dramatic lifegiving techniques and improved management of chronic diseases, an ever increasing demand is being created for medical services.

Last year, the Secretary's (DHEW) Regional Conference on Health Care Costs was held in San Francisco, for participants from the San Francisco region, comprised of the States of Alaska, Arizona, California, Hawaii, Nevada, Oregon, and Washington.

The purpose of the conference was to bring together a group of influential persons from throughout the Region to provide a forum for productive discussion of experiments designed to contain the cost of health care while maintaining or improving quality levels and thus stimulate widespread interest, activity, and cooperation. Individuals invited were among those in the communities throughout the region who were known and recognized persons in positions of leadership from which they could initiate action. A good representation of the viewpoints which need to be considered in any sound approach to making high quality health care available to all at a reasonable cost was sought. This included, in addition to the professions involved in health care, the consumers and third party payers.

It was the intent to provide a setting which would be conducive to free discussion. There was no tightly structured agenda — only one speech, the keynote address — and federal participation was limited to a very few resource people who were available to clarify federal programs if and as called upon.

There were nine separate discussion groups, and their comments, observations and recommendations are contained in this report — as you can see, much too voluminous for me to cover in detail at this time.

If there was one thing apparent at the conference, it was that recognized experts in the health care field do not have all of the answers — and they are among the first to admit it. As the chairman of one of the groups stated, "it appears that no group . . . has climbed the mountain, conferred with the diety and returned with a 'how to do it' inscribed tablet."

If the practice of government is not an exact science — and it isn't — neither, it appears is the delivery of health care services. I sat as recorder for one of the groups. There was much open and spirited discussion, with some consensus, but many differences. One consensus was that we should have as an appropriate national goal — to provide high quality comprehensive health services to all of the people at the lowest possible cost. Another — comprehensive planning should bring pressure to eliminate duplication of facilities and services, and planning should include all providers and users.

Considerable discussion was given to the best means of financing — it was said that the wealthy and the poor get good health care services. As you can well imagine, this statement was challenged. But there was agreement that some who need care most are not ever recipients. Not being reached are many of the urban poor who are not connected to the mainstream sociologically nor economically. In our seven-state region, there are four counties of over 50,000 population lacking home health services.

One of the groups proposed, as an experiment, that the federal government should set up health care clinics, attract the best people (they didn't say how), train the personnel, and do what can be done in the areas of the greatest need. Also, there should be expriments in the private sector, with payment based upon capitation. In planning, coordinating, and providing health services, there is need for significant improvement in communication with those using the services, and greater willingness to reflect the views of the consumer. Health care education is a two-way proposition; providers can learn from the public.

There was a suggestion for the design of a system — a community health care center wherein the patient can select his own physician. In

this community health care center, there should be made available to the physician all ancillary and paramedical services, as well as administrative support. The services of this community health care center would be coordinated through a health care team. There would be an emphasis on a pooling of expensive equipment and facilities.

The difficulty in providing such services to rural areas was recognized as a problem.

Considerable attention was given to a "problem" that really shouldn't be a problem — and that is, the relationship of government to the delivery of health care services. Often, the role of, and attitude toward, government in any relationship simply isn't clearly delineated.

On the airlines, the stewardess announces that government regulations require that seat backs be in an upright position on landing and takeoff. By so wording the announcement, I don't know if they're implying that it's really not necessary, and but for the regulation, you could lounge about in your seat just any old way, — or do they get greater compliance and less grumbling by placing the onus on the government. I don't know.

One cigarette states, "government tests show that our cigarette contains less tar and nicotine than other leading brands," but neglect to cite other governmen tests that indicate that it might not be a bad idea to forego cigarettes altogether. So much for digressing.

In considering the relationship of government to the delivery of health care services, the question was, should it be,

(1) a sacred voluntary approach — government, keep out —
(2) some kind of partnership —
(3) a public utility type of enfranchisement —
(4) a government regulatory system.

There was no consensus, but this one group's position appeared to be, not all government, not no government, but a willingness to accept government in the relationship. While agreeing that there is need for government involvement, the question was to what extent, to effect a better partnership between government and the private sector. There was complete agreement as to the need for maximum possible local participation and decision making.

In a speech before three sections of the Commonwealth Club of San Francisco, Charles Shreve, then Regional Director, Department of Health, Education, and Welfare, said:

"Over the next several years, we can make vast improvements in the nation's health care system."

Medical miracles will continue to unfold and they should become available to all who can benefit from them without regard to income, race, geographical location or any other criteria but medical need.

Through a world-wide health campaign, we can share with other nations our knowledge and eradicate many diseases from the planet.

Life expectancy should be increased along with the assurance that a longer life will be a healthier life.

Through new and improved methods of organizing and delivering medical care, every expectant mother should be provided prenatal and postnatal care, drastically reducing infant mortality rates, which in our country today are a disgrace, 15th among the nations of the world.

Comprehensive health care should be made available to every child regardless of the parents' financial circumstances.

Family planning should be the choice of every couple, thus assuring every child the birthright of being a wantcd child.

More medical schools should be built, more physicians and nurses trained and their skills used more efficiently and effectively through the use of physicians' assistants, mid-wives, practical nurses, and new types of health workers.

Through public and private insurance plans, the financial barriers to high-quality health care must be removed. Health insurance should be extended to groups not now covered by health insurance.

And coverage should be expanded to include many alternatives to hospital care — preventive and home health services, institutional care, dental care, and the prevention and treatment of mental illness.

In closing, let me say that I think that we can generally agrec that the present system needs improvement, and greater authority than has been produced in the voluntary health system as it is now organized and controlled. Considering the very nature of this particular program — complex in its structure, sensitive in its relationships, awesome in its impact — health planning, coordination, and control must of necessity be a partnership involving the consumer, provider and government.

THE QUESTION:
WILL WE LEARN FROM EXPERIENCES WITH MEDICARE AND THE BRITISH HEALTH SERVICE?

Santayana said it: "Those who cannot remember the past are condemned to repeat it." We are in the midst of a national debate regarding health care in the United States and it is essential that we recognize current inequities, and retain the goal of providing first class medical care for all of our people. However, we must build a model for the delivery of health care based upon the excellent features of our present system, the best aspects of our experience with Medicare, and the portions of the British and Swedish social systems that are most likely to help the needy of this country. The corollary to this is to learn from mistakes — our own as well as others, and to eliminate them in our plans for the future. Part of the difficulty in accomplishing such objectives is human selective imperception.

It is apparent that hospital daily service charges have increased out of all proportion to other medical costs, including physician's fees since the advent of Medicare in 1965 and that all of these elements have exceeded the rise in cost of living generally. It has always seemed to be immoral for struggling taxpayers to provide Medicare for individuals who can afford to pay for their own comprehensive health insurance. To extend such a plan to everyone under the age of 65 would not only perpetuate this mistake but would tend to bankrupt the system. Britain's National Health Service is in trouble according to a recent 600-page report which insists that taxation, the source of 85.5% of NHS expenditures, can no longer keep the system going, not even at its present inadequate rate. Hospitals, the biggest spenders in the NHS, are particularly hit by soaring costs. The report suggests the answer is to persuade people to devote more of their spending money to their own medical care, so that they can enjoy private treatment and so hospitals are stimulated by the profit incentive.

Why shouldn't we learn from experience rather than to allow our country to be condemned to repeat past mistakes? Readers of ARIZONA MEDICINE are invited to thoughtfully consider a special article by Barry S. Stone entitled *Medicare-Progress and Problems* in this issue and to send brief letters to the Editor regarding this timely subject. Subsequent editorials and special articles will attempt to point out some of the proposed solutions.

John R. Green, M.D.

Editor's Page

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President's Page



One day a young man, in an interview, was asked if he were a good leader, and he responded, "No," but added he was a good follower.

In today's world we all seem to be concentrating on the aspect of leadership when we may need to develop the concept of being a good follower.

On occasions it is found that it is necessary to go out and look for leadership, but it usually is a succeeding process and one that continues in an unbroken line. This is evidenced in all facets of America from the executive branch of the federal government on down. It is also provided for in organizational bylaws for our concern seems to be with leadership.

But — take a close look at and see where we would all be without followers — and leaders in one organization may be a follower in another. Where are our leaders when the followers do not voice their intents, ideas and convictions to their leaders? How can the leaders lead when there are no followers or if there is no one to lead?

It's necessary that everyone have a voice in all aspects wherein he is a follower, and to do this, he has to set down his ideas to his leaders. This holds true for politics, religion, and medicine and certainly is not limited here.

The concept of a good follower is not one of subservience or indifference for then he is a mere vassal. The concept of a good follower should be taken with pride and participation. It is not something to be taken lightly.

We have all heard the expression — "All Chiefs and no Indians" — This is exactly what we and any organization doesn't need. So followers arise and be heard, be a part of our great organization, but be careful for you may now become a leader.

Fred H. Landeen, M.D.
President

Dean's Page

REACHING OUT IN CARDIOLOGY

Looking south from Salt Lake City to Guadalajara and east from Los Angeles to Albuquerque one finds that, up to now, there has been so significant focal point for the health sciences in this vast region. The establishment of the University of Arizona Medical Center has changed this picture. The creation of a concentrated center for the health sciences in such a large land mass has also created an attendant challenge of some magnitude.

This challenge has brought to Arizona a collection of bright, relatively young, medical faculty members. They had established their credentials as successful innovators before coming here and one could summarize their views about what this evolving Medical Center should be somewhat like this: The Medical Center should be far more than a factory for turning out physicans. Particularly because of its location, the Center should be an extension of each physician in each community. It should be a source of research that will benefit the community and it should provide selected services to the community. Finally, it should provide an educational environment for the members of the health professions.

The Cardiology Section of the Department of Internal Medicine, headed by Dr. Frank Marcus, exemplifies this kind of thinking superby. Extending beyond a well conceived, demanding program for students, the Section has "gone on the road" with an equally rewarding program of continuing education. Each program has been established at the request of local physicians and has involved them as instructors. Each has been tailored to their needs and, to-date, each program has been received with great enthusiasm.

One of the first and most interesting programs was a rheumatic fever workshop for physicians in Southern Arizona. Using the Arizona Regional Medical Program as a vehicle for determining need and interest, a team of cardiologists travelled to St. Joseph's Hospital, Nogales, for a two-hour evening symposium. The workshop involved two patient presentations, a demonstration of the heart sound simulator used in cardiac training, and discussions by practicing physicians on prevention, diagnosis and treatment of rheumatic fever.

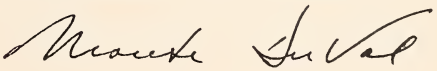
The recorded attendance clearly reflected the high level of interest generated. Not only did physicians from Nogales attend, but three came from Sierra Vista, one from Bisbee, one from Tubac, one from Patagonia and eight from Nogales, Sonora.

The program was concise, to the point and, according to those attending, had considerable practical value. This has been the hallmark of the programs which have followed, including one at Yuma on cardiology and a second one at Nogales on cardiopulmonary resuscitation. The second Nogales workshop followed a similar pattern; it was requested by local physicians, combined the resources of the County Medical Society, the Southern Arizona Heart Association and the Arizona Regional Medical Program, and involved both faculty and non-faculty, to insure the most practical and worthwhile curriculum.

In addition to the workshops, the Cardiology Section has prepared a basic educational presentation for demonstration throughout the State entitled: "New Concepts in Cardiac Auscultation." It was first exhibited at the Scientific Session of the Annual Meeting of the Arizona Medical Association this past April. The demonstration encompassed the newest teaching techniques in the field as well as new variations on old methods. (One example of the latter is a device developed by Dr. Marcus which displays simulated heart sounds on a television screen.)

The "New Concepts" presentation provoked much interest among physicians attending the sessions and further reinforced the desirability of projecting the work being done at the Medical Center out into the state for the benefit of all practicing physicians.

These examples are not exhaustive, but they illustrate how research and teaching in cardiology at the Medical Center can be interdigitated with the expressed desires of the medical community. They also reinforce the contention of many practicing and teaching physicians in Arizona that one of the greatest challenges for this institution is that of being a responsive resource for the profession and the community.



Letters to Editor

Editor
ARIZONA MEDICINE
810 West Bethany Home Road
Phoenix, Arizona 85013
Dear Sir:

Reference is made to an article in ARIZONA MEDICINE, June 1970, entitled "Blood Alcohol Determination by Use of MOBAT." I assume that the model Mobat used was #SM2, which relies for accuracy on an alcohol/carbon dioxide ratio, which in turn relies on a relatively constant carbon dioxide contest of alveolar air. Early experimental studies reported that this concentration was uniformly 5.5% by volume. The method employed in the article makes use of mixed lung air. Instead of going into a lengthy discussion of the problems involved, I would like to quote from a manual prepared by the Committee on Medicolegal Problems of the American Medical Association. This is entitled "Alcohol and the Impaired Driver" and supersedes a previous manual. The quote is on page 98.

"However, the alveolar carbon dioxide content varies somewhat in normal individuals, and averages about 13 per cent less for women than for men. The mean for women in this study of 100 subjects was, indeed, found to be 5.50 per cent v/v; the mean for men was 6.33 per cent v/v, with respective ranges of 3.25 per cent v/v to 7.30 percent v/v for women and 3.90 per cent v/v to 7.60 per cent v/v for men. Further substantial deviations from the subject's own normal mean alveolar CO_2 content can result from marked hyperventilation and metabolic alkalosis. *Breath-alcohol devices dependent on the alcohol/carbon dioxide ratio are, therefore, being supplanted by those employing deep-lung air.*" (Emphasis added)

The ranges quoted above, I believe are too great to permit the use of such methods in court. Rightly or wrongly the determination of whether a person is driving while under the influence is determined by a figure. In a study conducted in California (I've been told) a series of similar comparisons were made. About one-third of these did not correlate well at all; and the lack of correlation was not consistently high or low.

Inasmuch as the conditions of the experiment described in no way resembles that which is encountered in the field, the conclusions about the reliability of the Mobat for court purposes is unwarranted. The urine alcohol determinations were an exercise in futility. No conclusions regarding driving while under the influence can be drawn from urine analyses, and quite correctly, the authors made no attempt to do so.

I would like to point out that Mobat has a screening device which is useful in approximating a blood level. This can give the officers enough information so as to warrant his getting the driver off the road.

There are devices available which do use deep-lung air and are not related to CO_2 concentration.

Sincerely yours,
Louis Hirsch, M.D.

Reprints

PRESSURE ON

Rufus K. Broadaway, M.D.
President
Dade County Medical Association
Miami, Florida

The pressure is on! The pressure is on doctors and hospitals, on communities and government, to make sweeping changes in the quality and quantity of methods of delivery of health care. A recent, nationally televised series on this "crisis" increased the pressure. An initial reaction interpreted this program as intense propaganda for national health insurance — and well it might have been.

Despite the bias of such a barrage of incidents, situations, and opinions, one must concede the problem of widely varying quality of care for most, and the non-existence of care for some. Costs have become a near-critical issue.

Clearly, American doctors must make a decision. We can continue as we are, attempitng to justify our position — certainly, there is a great amount of good in medicine in this country. Or, we can take the best of our present methods and incorporate these into new ways

of health care. Would you, for example, see one more patient a day, possibly indigent or low-income, for standard, sub-standard, or no fee? This would take care of 10,000 more patients a week in the Dade County area. Would you give two hours a week or one day a month in a low-income area, paid on a time and travel basis instead of fee-for-service situation? This would provide 30,000 people each month with ambulatory health care. Would you participate in a Foundation for health care, organized and run by doctors, for which you would work certain periods of time in return for reasonable compensation? This would eliminate many problems of financing, on which we are hung-up. Would you participate in an area-wide preventive health program, in which citizens would pass through multiphasic screening centers, followed by doctor-directed physical exams, based on simple, easy, direct methods? Data from such programs should soon tell us where emphasis should be placed to maintain a healthy population. Would you be part of a small team to go to a non-doctored rural area once a month to provide out-patient service to a community? This would provide some answer to the doctor distribution problem.

In essence, would you be willing to extend yourself a bit, settle for a little less money, change some of your ideas about how it should be done, and render more service as a professional dedicated to better health care?

We acknowledge, with appreciation, THE BULLETIN, Dade County Medical Association for permission to reprint Dr. Broadaway's President's Page of June 1970.

In Memoriam

HUGH MAX HELM

Born October 1, 1884, Roanoke, Denton County, Texas.

Elementary Education, El Paso, Texas, public schools. Graduated El Paso High School.

Graduate University of Texas Medical School, May 30, 1908.

License to practice Medicine and Surgery in State of Texas, issued April 1, 1908, by State Board of Medical Examiners.

Similar license to practice issued by Board of Medical Examiners of Arizona, May 30, 1908. (Reciprocity #851, per duplicate license issued July 30, 1927.)

Employed as Physician and Surgeon Batopilas, Chihualua, Mexico, silver mines. Married Sofia Ontiveros, daughter of mine owner, November 22, 1911.

Commissioned 1st Lt., Medical Corps, Texas National Guard, May 15, 1916. Appointed Captain, Medical Corps, October 6, 1917. Promoted to Major, Medical Corps July 18, 1918.

Served with U.S. punitive Expedition which pursued Pancho Villa into Mexico, under General John J. Pershing, in 1916.

Served in American Expeditionary Force, World War 1, from July 18, 1918, to May 30, 1919, (Meuse, Argonne Offensive). Honorably discharged from service July 7, 1919, at Fort Bliss, Texas. Commanded 111th Sanitary Train, 36th Division, U.S. Army (Texas, etc., Guard Unit).

Practiced Medicine and Surgery at El Paso, Texas, (private practice) until 1921.

Employed as Physician and Surgeon, El Tigre Gold & Silver Mining Company, El Tigre, Sonora, Mexico, in 1921-22.

Employed as Physician and Surgeon, Moctezuma Copper Company 1923-1926, at Nacozari, Sonora, Mexico, (a Phelps Dodge Mining Company property).

Physician and Surgeon, Calumet and Arizona Mining Company, Douglas Smelter, Douglas, Arizona, 1926-1932. Physician, U.S. Public Health Service and Immigration and Naturalization Service, 1926-1939. Staff, Cochise County Hospital, 1926 until retirement.

Physician and Surgeon, Bechtel-Kaiser Construction Company and Big Six Construction on Boulder Dam construction and other projects.

Physician and Surgeon — Phelps Dodge Minining Company, Douglas Smelter Division, Douglas, Arizona, August 2, 1934, until retirement November 1, 1950.

Immediately after retirement, opened X-ray laboratory at Douglas, Arizona, at request of local doctors — which laboratory he operated until his death, August 16, 1969, at Douglas, Arizona.

In 1959, was honored by the Arizona Medical Association in recognition of practice of medicine and surgery for a period of 50 years.

At about this same time three other practitioners in Douglas, Arizona, were similarly honored: Dr. E. W. Adamson (also deceased), Dr.

Arnott K. Duncan and Nicolo V. Alessi, the latter two still in practice in Douglas.

Member of American Medical Association, Arizona Medical Association and Cochise Counto Medical Society.

Member of Douglas Elks Lodge for 45 years and American Legion.

ArMA Reports

THE MINUTES APPEARING IN THIS SECTION HAVE BEEN EDITED TO CONSERVE SPACE. A COMPLETE COPY OF THE MINUTES OF ANY MEETING WILL BE MAILED TO ANY MEMBER REQUESTING THEM.

EXECUTIVE COMMITTEE

The meeting of the Executive Committee of the Board of Directors of the Arizona Medical Association, Inc., held Saturday, July 25, 1970, in the offices of the Association, 810 West Bethany Home Road, Phoenix, Arizona, convened at 3:32 p.m., Fred H. Landeen, M.D., President and Chairman, presiding.

ROLL CALL

PRESENT: Drs. Dew, Philip E., Treasurer; Flynn, Richard O., Past-President; Landeen, Fred H., President and Chairman; Sattenspiel, Edward, Secretary; Standifer, John J., Vice-President.

Staff: Barnett, Gary L., Associate Executive Director; Jacobson, Edward, General Counsel; Robinson, Bruce E. Executive Director; Turner, John S., Public Relations Consultant.

EXCUSED: Dr. Grobe, James L., President-Elect.

MINUTES

Minutes of the meeting held April 21, 1970 were approved as distributed.

RETIREMENT AGREEMENTS

Mr. Jacobson reviewed the revised retirement agreements for Paul R. Boykin and Bruce E. Robinson which provide for vesting.

It was moved and carried to recommend approval of the revised agreements to the Board of Directors.

DISTRIBUTION OF ARTICLES

Mr. Robinson reported that it would have cost $4,460 to distribute to the membership the recent article printed in Fortune and Business Week. Based on the cost, he did not proceed. He did indicate copies had been sent to all Board members. No action.

FINANCE COMMITTEE

Dr. Dew again stated his desire to have a Finance Committee appointed to assist him with the financial matters of the Association.

It was moved and carried to recommend to the Board the creation of a Finance Committee.

BICENTENNIAL CELEBRATION

Samuel B. Hadden's letter of May 19, 1970 inviting ArMA to participate in the bicentennial celebration in Philadelphia was discussed.

It was determined that for financial and other reasons that we would not be able to prepare an exhibit for this event.

AMERICAN ARBITRATION ASSOCIATION

The Committee approved joining the American Arbitrartion Association. The dues are $50 annually.

BOARD OF DIRECTOR'S AGENDA

The Committee reviewed the July 26, 1970 agenda of the Board of Directors and prepared recommendations relating to items thereon.

Meeting adjourned.

Edward Sattenspiel, M.D.
Secretary

BOARD OF DIRECTORS

Meeting of the Board of Directors of the Arizona Medical Association, Inc., held at 810 West Bethany Home Road, Phoenix, Arizona, July 26, 1970, a quorom being present, convened at 10:10 a.m., Fred H. Landeen, M.D., President and Chairman presiding.

ROLL CALL

PRESENT: Drs. Bill, E. Charles; Cloud, Daniel T.; Czerny, Everett W.; Dew, Philip E., Treasurer; Green, John R.; Henderson, Charles E.; Jarrett, Paul B.; Landeen, Fred H., President and Chairman; Limbacher, Henry P.; Lyle, William H.; Moody, Deward G.; Payne, William G.; Price, Robert A.; Reed, Wallace A.; Sattenspiel, Edward, Secretary; Schaller, Donald F.; Scott, William C.; Shapiro, Seymour I.; Standifer, John J., Vice President; Steen, William B.

Staff: Messrs. Barnett, Gary L., Associate Executive Director; Jacobson, Edward, Counsel; Robinson, Bruce E., Executive Director; Turner, John, Public Relations Consultant.

Guests: Drs. Bertino, George G., President, Navajo County Medical Society; Hildebrand, John E., President, Coconino County Medical Society; Koren, Paul, Medical Director, Arizona Blue Cross-Blue Shield; Langston, Don V., Chairman, ArMPAC; Melick, Dermont W., Coordinator, Arizona Regional Medical Programs; Minter, David R., President, Pima County Medical Society; Wagner, Albert G., Chairman, Professional Committee.

Messrs. Block, Richard L., Counsel, Insurors Management Company; Foster, John C., Executive Director, Arizona Blue Cross-Blue Shield; Summers, Walter, Executive Director, Pima County Medical Society.

EXCUSED: Drs. Flynn, Richard O., Past President; Grobe, James L., President-Elect; Lewis, Leo L.; Mertz, George H.

WELCOME

Dr. Landeen welcomed all guests and Dr. Wagner gave the invocation.

MINUTES

Minutes of the meetings held 4/21/70, 4/23/70 and 4/25/70 were approved as distributed.

INSURORS MANAGEMENT COMPANY PROPOSAL

The subject of the Insurors Management Company's proposal as reviewed in detail at a special meeting held June 28th was discussed in great depth.

Mr. Robinson read the 7/9/70 letter of the Pima

County Medical Society's Board of Directors which stated:

"The Board of Directors has gone on record as endorsing the Insuror Management Company proposal and urges that the Arizona Medical Association, at its July 26th meeting, also favorably consider this proposal."

Question was raised as to the current status of the AMA's plans. Mr. Robinson read the AMA's letter of 7/17/70 on this subject as follows:

"The current plans of the AMA are to implement the direction given by the House of Delegates in favor of establishing a co-sponsored (State Medical Society-American Medical Association) Professional Liability Program to be available to AMA members in those areas where the project is implemented.

"At present, there is a legal negotiation going on between the insurance carrier, the broker, and the American Medical Association to make certain that all contractual and staff responsibilities are brought together in one document.

"It is difficult to accurately speculate on this, Bruce, but I am convinced that the great minds that are at work on this activity will produce a program very shortly."

Many arguments were made for and against the idea of creating a physician owned professional liability insurance company. Mr. Richard L. Block, Counsel of Insurors Management Company, was most helpful in answering questions. Several suggestions were made regarding further surveys of the membership to determine current interest.

Mr. Jacobson suggested that an independent consultant and actuary be retained to review the Insurors Management Company's proposal.

Two questions would be asked of this consultant:

1. Based on the results of the ArMA survey of its membership, are the projections of Insuror Management Company actuarily sound?

2. Whether over the near future it looks as if this will be a better picture than one the doctors could get through the various insurance companies now operating in the field.

It was moved and carried that the Association secure an independent insurance consultant and actuary; that the Executive Committee choose the firm from west coast firms and that the budget for this study not to exceed $4,000.00.

ArMPAC BOARD OF DIRECTORS

Don V. Langston, M.D., Chairman of ArMPAC, reported that the 1970 membership is presently higher than 1969. ArMPAC has been active in political action and education. At the last Board meeting it was determined to participate in state legislative races in a significant way for the first time. ArMPAC is planning on a guest political speaker scheduled for April 29, 1971. REPORT RECEIVED.

BOARD OF DIRECTORS

The Board acknowledged the following appointments:

William B. McGrath, M.D., Board of Medical Examiners.

Paul J. Slosser, M.D., Advisory Survey and Construction Council.

Everett W. Czerny, M.D., ArMA Board of Directors, replacing James E. Brady, Jr., M.D.

Richard O. Flynn, M.D., Regional Medical Programs — Regional Advisory Group.

EXECUTIVE COMMITTEE

Membership Classification Changes Approved

Coconino County

a. Garbayo, Rafael — Active to Affiliate — effective 1/1/70, dues exempt.

Maricopa County

a. Armour, Paul S. — Active to Associate — Account illness — effective 1/1/70; request refund of 1970 dues.
b. Fisher, Wallace C. — Active to Associate — Account Residency — effective 1/1/70 — dues exempt.
c. Kovar, J. Dean — Active to Associate — Account illness — effective 1/1/71; dues exempt.
d. Spendlove, George — Active to Associate — Account Residency effective 1/1/70; dues exempt.
e. Watson, Ernest S. — Active to Active over 70 — effective 8/8/70; dues exempt.

Pima County

a. Kiel, Lee H. — Active to Associate — Account Retirement — effective 1/1/70; dues exempt.
b. Munger, Elbert E. — Active to Active over 70 — effective 1/1/70; duees exempt.

Retirement Agreements

The original retirement agreements prepared for Mr. Paul R. Boykin and Mr. Bruce E. Robinson in 1959 and 1965 respectively, were reviewed by Mr. Jacobson. Mr. Jacobson advised that at the direction of the Executive Committee he has rewritten the agreements so that vesting occurs. This would provide that should Mr. Boykin or Mr. Robinson leave the employ of the Association for other than cause and prior to their regular retirement that they would receive a severence benefit in an amount equal to the cash surrender values and any accumulated dividends and interest of any policies of life insurance on the lives of the executives owned by the Association.

It was moved and carried that the agreements be approved as outlined.

Financial Report

Dr. Dew reviewed the financial report for the period ending June 30, 1970 and requested that the following budget adjustments be made.

It was moved and carried that the 1970 budget be adjusted as follows:

Number	Title	Amount
506	Telephone and Telegraph	2,400.00
507	Printing	1,500.00
519	Interest Expense	171.60
521	Audit	200.00
500A	Annual Meeting	4,620.48
500E	Professional Liability Legislation	500.00
500H	Grievance	300.00
500K	Legislative — other	300.00
500-O	Continuing Medical Education	400.00

Dr. Dew presented the following figures relating to the building program.

BUILDING PROJECT RECAPITULATION AS OF JUNE 30, 1970

1.	Land	$ 30,049.50
2.	Appraisal & Finder's Fees	7,500.00

3.	Architect	20,713.80
4.	Engineering	1,636.00
5.	Miscellaneous Costs	3,070.94
6.	Basic Construction Contract	249,083.79
7.	Landscaping	6,673.89
8.	Carpeting	8,365.76
9.	Furniture	20,212.74
10.	Signs°	60.00
11.	Miscellaneous Equipment	4,244.43
12.	Kitchen Equipment	1,688.37
13.	Cabinet Work	2,415.67
14.	Telephone Installation	713.00
15.	Drapes°	1,342.12
TOTAL EXPENDED AS OF 6/30/70		$357,770.01°°

°Additional expenses anticipated:

Sign	$432.00
Drapes	$450.00

°°Total estimated cost per auditor's report as of 12/31/69 was $348,935.28. Actual project cost as of 6/30/70 is $8,834.73 over the auditor's estimated cost, which did not include such things as miscellaneous equipment, kitchen equipment, cabinet work, telephone installation and drapes.

Borrowing Authority

Dr. Dew reported that current cash projections indicate that we will need to increase our borrowing authority with the Valley National Bank to take care of operations for the balance of the year.

It was moved and carried that our borrowing authorization with the Valley National Bank be increased from its present limits of $50,000.00 up to a limit of $100,000.00.

Finance Committee

Dr. Dew's request that consideration be given to the establishment of a Finance Committee to assist the Treasurer with financial matters of the Association was discussed.

It was moved and carried that an Interim Finance Committee be appointed and that the matter be referred to the Articles and Bylaws Committee to develop the necessary Bylaws changes for consideration of the House of Delegates at their next meeting.

AD HOC COMMITTEE ON CONTINUING MEDICAL EDUCATION.

Clarification of Resolution 5-70

Dr. Landeen pointed out that it was not clear whether Resolution 5-70 dissolved the Section on Medical Education of the Professional Committee when it established the subject Ad Hoc Committee.

It was moved and carried that the intent of Resolution 5-70 was to eliminate the section on medical education of the Professional Committee and replace it with an Ad Hoc Committee on continuing medical education.

RMP's — CESA Project

Dr. Melick reviewed the proposed CESA project summarizing as follows:

A survey of all practicing physicians in Arizona has been conducted by the Arizona Regional Medical Program. This survey indicates a need and a desire for increased continuing education in the form of regularly scheduled postgraduate workshops and conferences that are easily accessible to practicing physicians in Arizona.

In response to this need the Arizona Regional Medical Program sponsored a series of workshops related to heart disease, cancer and stroke in several communities outside of Tucson and Phoenix. These pilot workshops were well received and further confirmed that a strong demand exists for instituting a regular program in continuing education. However, it was apparent that an inordinate amount of time was being consumed in making arrangements for classroom facilities, equipment, instructors, etcetera in each locale. It was also realized that periodic programs staffed by University of Arizona medical faculty and by specialists in private practice could not be held in every community frequently enough to make a significant impact on the problem of continuing education.

Recognition of the above problems resulted in the formulation of a sub-regional approach to continuing education by the Arizona Regional Medical Program. Under this approach Arizona could be visualized as consisting of sub-regions whose size and number would depend upon the established patterns and expressed desires of local communities. In each sub-region adequate facilities and basic teaching equipment would be made available on a long term basis for educational purposes. Through locally selected Medical Education Committees and Directors of Medical Education, the education needs of the practicing physician in each area will be identified and an appropriate schedule of workshops and conferences developed on a yearly basis. The objectives of the Continuing Education Workshops and Conferences Program are to have each year in each non-metropolitan sub-region a series of workshops with AAGP credit in heart, cancer, stroke and related diseases and to have regularly scheduled conferences in the Phoenix and Tucson areas.

This proposed project, "The Development of Continuing Education Service Areas," should provide the basic elements of the delivery system for the program outlined above. In addition, it is seen as the initial step in establishing a delivery system that would promote the integration of continuing education programs for all health professions in Arizona as related to local needs. Furthermore, it is hoped that the availability of teaching facilities throughout Arizona would be a stimulus for health professionals to develop programs in continuing education best suited to their local needs.

Dr. Melick requested endorsement of the further development of this project.

It was moved and carried that the Association endorse the Continued Development of the CESA's Project.

GOVERNMENTAL SERVICES COMMITTEE

Compensation of Medical Review Section Members

The question of compensating members of the Section on Medical Review of the Governmental Services Committee for the work they do for the Medicare Part-B Carrier during their monthly meetings was discussed.

The Governmental Services Committee recommended that committee members be compensated at the rate of $50.00 per hour plus $.12 per mile mileage.

It was moved and carried that the above recommendation be approved.

Blue Shield Utilization Review Program

Mr. John C. Foster introduced Dr. Paul Koren, Medical Director of the Blue Cross-Blue Shield who reported briefly on the progress of Blue Shield's new Utilization Review program. Dr. Koren also reviewed the new pre-admission review program in California.

Dr. Koren stated that the present plans would be to go in a step-by-step fashion with each case. First with the hospital's Utilization Review Committee, then if necessary, to the County Medical Society Utilization Review Committee and then finally, if needed, to a State Association Utilization Review Committee. PROGRESS REPORT ACCEPTED.

"You, Medicare and Your Physician" Brochure

Mr. Robinson indicated that over 70,000 brochures have been distributed with many complimentary remarks. It was noted that the Medicare Part-B Carrier has paid for one-half of the cost.

GRIEVANCE COMMITTEE

Confirmations

The Board confirmed the appointments of Carolyn F. Gerster, M.D. and William B. McKinley, M.D. for terms 1970-73.

Greenblatt vs Ergenbright

The Board reviewed the committee's recommendations as set forth in the minutes of the 6/14/70 meeting.

It was pointed out that an error existed in the "Determination" portion of item 5 appearing on page three of the 6/14/70 meeting minutes. The error is in the sentence reading: "Blue Shield conducted their own investigation and took independent action by referring the matter to the Board of Medical Examiners . . ." The sentence should have read: "Blue Shield conducted their own investigation and a phyisician member took independent action, as required by law, and referred the matter to the Board of Medical Examiners . . ."

It was moved and carried that the conclusions of the Grievance Committee be approved by this Association and that the Minutes of the Committee June 14, 1970 meeting be corrected as outlined above.

LEGISLATIVE COMMITTEE

The Board confirmed the appointment of Don V. Langston, M.D. to the Legislative Committee for the 1970-73 term.

MEDICAL ECONOMICS COMMITTEE

Valley National Bank Master Charge

The Board reviewed the Committee's recommendation of endorsement of the Valley National Bank's proposal to promote the Master Charge program use by physicians. This program would not use physicians' names and would submit advertising to the Association for prior approval.

It was moved and carried that Valley National Bank's Master Charge advertising program be approved.

Defendants Reimbursement Policy

The National Casualty Company's request for endorsement of their proposed Defendants Reimbursement Policy was reviewed. It was noted that the Committee recommends endorsement be withheld.

It was moved and carried that the Committee's recommendation be approved.

1969 California Relative Value Schedule

The Medical Economics Committee recommended that the Board arrange for introduction of a resolution requiring Blue Shield to adopt the nomenclature and unit values as set forth in the 1969 RVS for all fee schedules in the future.

Mr. John C. Foster related the problems and history of the 1969 RVS as far as Blue Shield locally and nationally is concerned. RECEIVED FOR INFORMATION.

COMMITTEE ON OCCUPATIONAL HEALTH, AD HOC

The Board confirmed the appointment of Eugene Ryan, M.D. to this Committee for the term 1970-73 and as chairman for 1970-71.

SCIENTIFIC ASSEMBLY COMMITTEE

1972 and 1973 Meetings

It was moved and carried that the Scientific Assembly Committee's recommendation to hold the 1972 and 1973 meetings at the Safari Hotel, Scottsdale be approved.

80th Annual Meeting Format

It was moved and carried that the Scientific Assembly Committee's recommended format for the 80th Annual Meeting be approved with the exception that they have the freedom to change registration fees should that be necessary for a fiscally sound program.

A.M.A. DELEGATES REPORT

Dr. Steen and Dr. Cloud reviewed briefly the recent Annual Meeting of the American Medical Association in Chicago. (A summary of the Action of the AMA House of Delegates is available at the Association offices).

COMMUNICATIONS

SAMA Letter April 15, 1970

SAMA's letter of 4/15/70 requesting a renewal of our sustaining membership was read and the $100.00 dues were approved.

OTHER BUSINESS

Arizona Council of Professions

The Arizona Council of Professions request for approval of the Council's dues structure was presented. The dues would be for associations, an annual dues of $100.00 plus 25c per member. Individual members annual dues would be $5.00.

It was moved and carried to approve the proposed dues subject to approval of other members of the Council.

AMA Council on Drugs Meeting May 8-9, 1970

Dr. Jarrett reported on the testimony he gave at the AMA Council on Drugs meeting. He pointed out that his complete statement appears in the June issue of **Arizona Medicine.**

"Reach to Recovery"

Dr. Wagner presented an outline of the American Cancer Society's new program to aid in the rehabilitation of mastectomy patients and requested Board approval. Approval granted.

MEETING ADJOURNED 2:36 P.M.

Edward Sattenspied, M.D.
Secretary

Future Medical Meetings

17th Annual Scientific Assembly

ARIZONA ACADEMY OF GENERAL PRACTICE

Ramada Inn, Tucson, Arizona

October 22, 23, 24, 1970

GUEST FACULTY

University of Arizona College of Medicine

FEES

PRE-REGISTRATION BEFORE OCTOBER 9, 1970

Doctor and Spouse — $55.00 Total — Includes Registration — Two for Banquet — One Luncheon — One Bus and Luncheon in Nogales — Two Buses, Dinner and Admission to Greyhound Park — Two Buses and Picnic to Kitt Peak.

Doctor only — $35.00 — Includes Registration — One Banquet — One Luncheon — One Bus, Dinner and Admission to Greyhound Park — One Bus and Picnic to Kitt Peak.

GENERAL: Registration only $10.00.

Banquet $10.00 per person
Luncheon $4.50 per person
Bus, Dinner and Admission to Greyhound Park $7.50 per person
Kit Peak tour, Bus, Picnic and Bar $6.50 per person
Nogales tour, Bus and Luncheon $10.00 per person

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Some recent advances in diagnosis and treatment.

OCTOBER 5-7, 1970

INSTITUTO NACIONAL DE LA NUTRICION
DEPARTMENT OF GASTROENTEROLOGY
MEXICO, D.F.

MEETING PLACE
Auditorum 7. Bloque B.
Unidad de Congresos
Centro Medico Nacional
300 Cuauhtemoc Ave.
Mexico, 7. D.F.

DIRECTOR
Eduardo J. Barroso, M.D., F.A.C.P.

CO-DIRECTOR
Jose J. Villalobos, M.D., F.A.C.P.

SUMMARY OF COURSE

The main object of this course will be a review of the basic, clinical and therapeutic aspects of some liver, pancreatic and small intestine diseases. Emphasis will be put on current concepts in physiology, diagnostic techniques and modern therapy. During the conferences, panel discussion and clinical presentations, basic aspects will be continually related to treatment methods.

ADVANCE NOTICE

FIRST SEMI-ANNUAL PEDIATRIC DAY

University of Arizona
College of Medicine
TUCSON, ARIZONA 85721

October 25, 1970

(After the Annual Session of the Arizona Academy of General Practice)

AMERICAN BOARD OF FAMILY PRACTICE, INC.

will give SECOND examination for certification in various centers throughout the United States. The examination will be over a two-day period on February 27-28, 1971. Information regarding the examination and eligibility for the examination can be obtained by writing:

Nicholas J. Pisacano, M.D.,
Secretary-Treasurer
American Board of Family Practice, Inc.
University of Kentucky Medical Center
Annex #2, Room 229
Lexington, Kentucky 40506

PLEASE NOTE: Deadline for receiving completed applications in the Board office is **November 1, 1970.**

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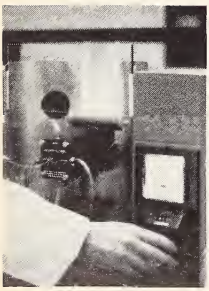
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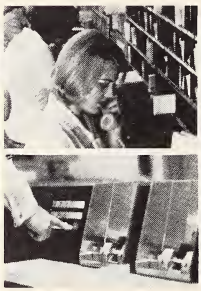
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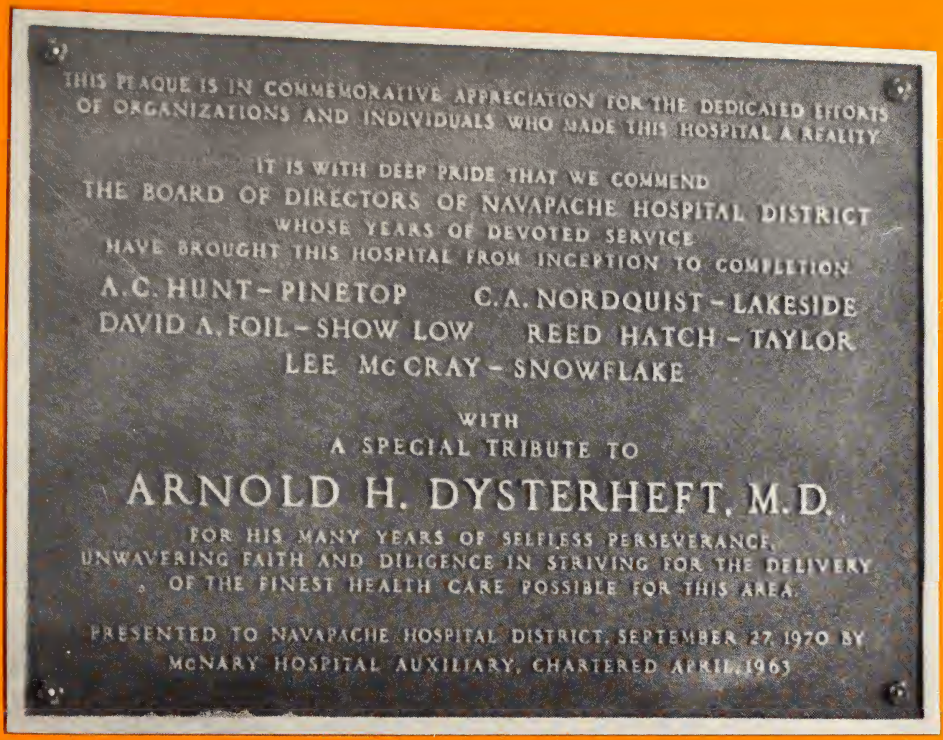


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North Hollywood, California 91607
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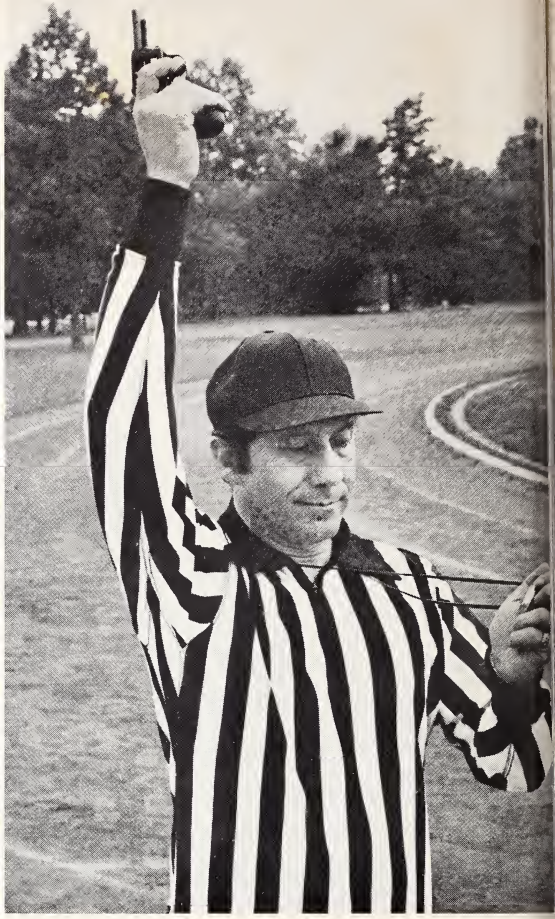
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COVER

Our cover this month commemorates yet another honor bestowed upon Arnold H. Dysterheft, M.D., former president of the Arizona Medical Association. Arnold is truly Arizona's first citizen of health care. Our thanks to Dennis B. Farrell, medical writer for the Phoenix Gazette, who provided the photograph.

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BREAKUP—symbol of the impact of emotional stress. But when the stress exceeds transient rage or depression—and settles into a chronic mixed anxiety depression state—combined tranquilizer-antidepressant therapy could be indicated.



Original Articles

BILIARY CANCER AMONG SOUTHWESTERN AMERICAN INDIANS

ross rudolph, m.d.[1] j. j. cohen, m.d.[2] r. h. gascoigne, m.d.[3]

In a well prepared article, the authors present their experience with "Biliary Cancer Among Southwestern American Indians"; in their work at Gallup, New Mexico Indian Medical Center. These physicians have reported a significantly high occurrence of biliary cancer among Indians. The article is of great regional interest and well written.

Calculous biliary tract disease is a significant health problem among Southwestern American Indians, occurring with greater frequency than in the general population.[5, 11] Sampliner and O'Connell[9] noted that symptomatic gallbladder disease began at an earlier age and was more often accompanied by choledocholithiasis. They also found a higher incidence of carcinoma of the gallbladder, as did Sievers and Marquis.[11]

At a recent Tumor Conference held at the U. S. Public Health Service Indian Hospital in Gallup, New Mexico, four of the six current cases discussed were cancer of the gallbladder or bile ducts — this suggested that we were presented with an unusual opportunity to study a type of neoplasia not seen with great frequency elsewhere. To evaluate the extent and nature of biliary cancer as seen at the Gallup Hospital, we reviewed the records of all patients with this diagnosis.

INCIDENCE

During the eight-year period from the opening of the hospital in May, 1961 through May, 1969, seven hundred and forty-eight (748) operations were performed on the gallbladder and/or biliary ducts. Cancer of the gallbladder was found in thirty-five of these, and cancer of the extrahepatic biliary ducts in seven. Thus, there was a 4.5% incidence of gallbladder cancer and a 0.9% incidence of ductal cancer, leading to a combined incidence of 5.4% of biliary cancer found in biliary tract surgery in our Indian population. (Table 1)

[1, 2, 3] From the Department of Surgery, Gallup Indian Medical Center, U. S. Public Health Service, Gallup, New Mexico.
[1] Department of Surgery, University Hospitals of Cleveland, Cleveland, Ohio (present address).

TABLE 1
Incidence of Cancer in 748 Biliary Tract Operations

	No. of Patients	Percentage
Biliary tract cancer	35	4.5%
Extrahepatic biliary ductal cancer	7	0.9%
Total	42	5.4%

During the same eight-year period, there were a total of eighty-five cancers of the digestive organs found (Table 2). Biliary tract cancers constituted almost half, and were by far the most common cancers of the gastrointestinal tract.

TABLE 2
Cancers of the Digestive Organs 1961-1969

	No. of Patients	Percentage
Gallbladder	35	41%
Biliary ducts	7	8%
Total	42	49%
Stomach	22	26%
Colon	12	14%
Liver	4	5%
Pancreas	4	5%
Small bowel	1	1%
Total	85	100%

The average age of the patients with gallbladder cancer was sixty-seven and that of the ductal cancer patients was sixty-four. In the former group there were twenty-six women and nine men, a ratio of three to one. Four men and three women had ductal cancer. Navajo Indians comprised the majority of our patients, numbering thirty-five; there were six Zunis and one Hopi.

SYMPTOMS AND SIGNS

Right upper quadrant pain was the most common symptom in the gallbladder cancer patients, occurring in thirty (86%). Nausea and vomiting was the next most common symptom, being present in 37% of the patients. Jaundice occurred in eight patients (23%) and weight loss in seven (20%). All the patients with biliary duct cancer had pain as the primary symptom; however, jaundice was the initial sign in two.

TABLE 3
Signs and Symptoms

	Gallbladder Cancer		Ductal Cancer	
Symptoms	No. of Patients	%	No. of Patients	%
Right upper quadrant or epigastric pain	30	86%	7	100%
Nausea & vomiting	13	37%	3	43%
Jaundice	8	23%	2	29%
Weight loss	7	20%	1	14%
Fatty food Intolerance	3	9%	3	43%
Signs				
Right upper quadrant tenderness	18	52%	3	43%
Palpable liver	9	26%	2	29%
Right upper quadrant mass	7	20%	1	14%

On physical examination, right upper quadrant tenderness was the most frequent sign, occurring in 52% of the gallbladder group and in 43% of the ductal cancer patients. A palpable liver was next in frequency, followed by a palpable right upper quadrant mass.

LABORATORY AND RADIOLOGIC STUDIES

The usual laboratory analyses were made of urine and blood on admission. A prothrombin time exceeding the control (13-14 seconds) by two seconds or more was the most consistent blood chemistry abnormality in all of our patients with cancer of the biliary tract (Table 4). Second in frequency was an elevated bilirubin present in both the biliary ductal and the gallbladder cancer patients. The elevated indirect fraction of bilirubin was higher than the direct in the gallbladder cases, and almost equal in the ductal cancer ones. An elevated alkaline phosphatase was third in percentage of abnormal values for the gallbladder group, while the elevated Serum Glutamic Oxalacetic Transaminase (SGOT) was third in the ductal cancer cases.

TABLE 4
Laboratory and Radiologic Studies

		Gallbladder Cancer Patients	Biliary Duct Cancer Patients
Prothrombin time	No. done:	29	7
	No. abnormal: (over 2 sec. over control)	79%	86%
Bilirubin	No. done:	32	6
	No. abnormal:	72%	80%
	Direct>indirect:	9	3
	Indirect>direct:	13	2
SGOT	No. done:	27	5
	No. abnormal:	63%	60%
Alkaline phosphatase	No. done:	28	6
	No. abnormal:	68%	50%
BSP	No. done:	4	1
	No. abnormal:	50%	100%
Oral cholecystogram	No. done:	12	2
	Results:	11 nonvisualized 1 gallstones	2 nonvisualized

As expected, two nonvisualizing oral cholecystograms were obtained in the biliary duct cancer patients, and eleven in the gallbladder group. One additional examination in the latter demonstrated a gallbladder with stones present.

OPERATIVE FINDINGS AND PROCEDURES

(Clinical and Pathologic Findings)

Adenocarcinoma was the pathologic diagnosis

in all cases. This diagnosis was made by biopsy in all patients except three referred patients who had had positive biopsies performed elsewhere, and in one patient in whom the operative procedure had to be terminated because of hypotension.

At laparotomy twenty-three patients in the gallbladder cancer group were judged to have extensive cancer, which was felt to be unresectable. Eight of these were operated with a suspected diagnosis of cancer of the gallbladder.

In twelve other patients in the gallbladder cancer group, cholecystectomies were done for presumed chronic cholecystitis. Gallstones were noted by the surgeon in eight of these twelve patients; one of the remaining four patients was an eleven-year-old girl with a papillary adenocarcinoma, who had bilirubin crystals present microscopically. Only after the gallbladder had been removed could the operating surgeon make the diagnosis of cancer in two of these patients. In the remaining ten, the diagnosis was made by the pathologist postoperatively.

Unresectable cancer was found at surgery in all seven ductal cancer patients. One of these had a correct preoperative diagnosis.

Eight common bile duct T-tubes were inserted, and five cholecystostomies were done in the gallbladder patients. One patient had a right hepatic lobectomy performed after cancer was discovered in the permanent sections of the gallbladder. Four T-tube insertions and one cholecystostomy were done in the ductal cancer group.

POSTOPERATIVE RESULTS AND SURVIVAL

Three of thirty-five gallbladder cancer patients have lived five or more years following surgery, a survival rate of 9%. One additional patient has been followed for one and one-half years and is clinically free of disease. All of the surviving patients had cancer found incidentally in a removed gallbladder specimen.

Twenty-seven patients with gallbladder cancer died with an average survival time of six months. Among this group was the hepatic lobectomy patient, who died two days after operation in liver failure. Three patients have been followed for less than twelve months, and one was lost to followup after three months.

All of the ductal cancer patients succumbed rapidly, with an average survival of 3.9 months. Owing to cultural factors, few autopsies were obtained in either group.

A significant complication of drainage tube insertions (all performed in patients who later died) was migration of the tubes out of the biliary ducts or gallbladder. This migration was not the partial or total removal of the tube (as by a disoriented patient), but was rather a radiologic finding made by dye insertion through a tube that was not draining well. In most cases this occurred several months after insertion. Two of the T-tubes in the ductal cancer patients migrated, as did one T-tube in a gallbladder patient; one of the gallbladder cancer cholecystostomy tubes also migrated out into surrounding tissue. The tubes appeared by x-ray to be moving through carcinomatous tissue.

DISCUSSION

The most striking feature about this study is the high incidence of cancer of the gallbladder and bile ducts found at surgery in our patients. With a 4.5% and 0.9% gallbladder and biliary ductal cancer respectively (a combined incidence of 5.4%), there was biliary cancer found once in every nineteen operations on the biliary tract (most done for suspected benign disease).

This incidence is considerably higher than that reported in other series relating to the general population. Smith[12] noted that in 2223 biliary tract operations, 1.9% of his patients were found to have cancer; two-thirds were of the gallbladder, and the other one-third was of the extrahepatic biliary ducts. Bartlett and Quinby[1] found a 2% incidence of gallbladder cancer at operation, and Bockus[2] notes that the incidence of reported gallbladder cancer at operation ranges from .05% to 3.0% Neibling[8] found an incidence of extrahepatic biliary duct cancer of 0.5% at operation.

Cancers of the biliary tract were the most frequent gastrointestinal neoplasms, constituting almost half. The general population develops this type of cancer only one-tenth as often as the Southwestern Indian. Tumor incidence rates in a New England state (Connecticut)[3], and death rates for the United States,[14] show biliary cancer to be only sixth in frequency (4.1% in the former and 4.7% in the latter).

This high incidence of biliary tract cancer occurs in a population that has gallbladder disease clinically four to six times more frequently than the general population,[5] at autopsy has over three times greater chance of having gallstones,[11] and is twice as likely to have choledocholithiasis associated with symptomatic gall-

bladder disease.[9] This appears to lend futher circumstantial support to the theory that the chronic inflammation of chronic cholecystitis, cholelithiasis, and choledocholithiasis predisposes to cancer.

Many series[6, 12, 13] have noted a high incidence of gallstones in association with cancer of the biliary tract. Thorbjarnarson, for example, found 90% association in women, and a 59% association in men.[13] In many of our cases stones could not be definitely identified due to extensive spread of carcinoma. Hence, we are unable to comment on this relationship on the basis of this study.

Unusual, also, are the laboratory findings in our patients. They were not at all typical of the obstructive chemistries known to be associated with cancer of the biliary tract.[2] The prothrombin time was more consistently abnormal than any other laboratory value, and the indirect bilirubin was frequently more elevated than the direct (when the total was increased).

Sampliner[9] found this latter situation to exist frequently in Indians who had benign gallbladder disease. He suggested that this could be due to an associated hepatocellular disease or an enzymatic defect. In almost none of our patients at operation did there appear to be such extensive liver destruction as to account for the bilirubin findings.

The distribution of disease among the sexes in our patients is in agreement with other series, with gallbladder disease occurring three times more frequently in women than men, and extrahepatic duct cancer occurring slightly more in males. The manner of appearance of the disease (pain as the primary symptom), and the relatively poor survival rate (9% five-year survival for gallbladder cancer, 0% for ductal) are also similar to other studies.

Currently there is considerable controversy over whether cholecystectomy for symptomatic (or even asymptomatic) biliary tract disease should be done to prevent the development of cancer.[6, 12, 13] Judgment on this point rests on the relative dangers of cholecystectomy versus the risk of development of cancer in the biliary tract. In a previous study done at the Gallup Indian Hospital,[9] in two hundred and forty-nine biliary tract procedures, only four patients died; all of these were moribund on admission and had cholecystostomies performed. There were two hundred and thirty-one cholecystectomies and/or common duct procedures with zero mortality. While this was a small series, it does suggest that cholecyestectomy is a fairly safe procedure in the Southwestern Indian population. The low rate of coronary thrombosis in this group probably plays a role in the better survival statistics.[4, 7, 10]

The only long term survivors in this study were those patients in whom cholecystectomies were done for presumed benign disease and in whom early carcinomas were removed. Considering the relative safety of cholecystectomy and the high incidence of biliary tract cancer in the Southwestern Indian population, the high risk of development of biliary cancer should be a significant factor in the recommendation of cholecystectomy for gallbladder disease in this patient population.

SUMMARY

Among Southwestern American Indians, cancer of the gallbladder and extrahepatic biliary ducts was found in 5.4% of all biliary tract operations. These cancers are the most common gastrointestinal neoplasms in this population, constituting almost half.

The laboratory findings in these patients were not typical of biliary obstruction, in contradistinction to the usual presentation of biliary tract cancer in the general population.

The risk of development, or possible presence, of biliary tract cancer should be a significant factor in the decision to perform choleystectomy for gallbladder disease in this patient population.

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RELATIONSHIPS BETWEEN THE PREVALENCE OF GASTROINTESTINAL DISEASE AND ENVIRONMENTAL CONTAMINATION ON A PEDIATRIC WARD

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An interesting paper, deserving of the time of all physicians who constantly fight the battle of the spread of infection among hospitalized patients.

ABSTRACT

Studies of environmental contaminants associated with a pediatric ward were conducted at a time of high prevalence of diarrhea and repeated when the prevalence of diarrhea was low. The level of environmental contamination with organisms of fecal origin was higher when a larger portion of patients on the ward had diarrhea. Fecal coliform bacteria were isolated from the air and a higher percentage of patients harbored *Escherichia coli* in their throats when the prevalence of diarrhea was high than when the prevalence was low. Inadequate ventilation contributed to the spread of microorganisms throughout the ward. Enteropathogenic *E. coli* survived on surfaces and in air close to a patient shedding this agent in stools. The findings suggest a potential airborne route of transmission for enteropathogenic bacteria and show that patients are major contributors to the contamination of their environment.

The importance of reservoirs and modes of spread of bacteria of fecal origin in intramural hospital environments is apparent from the increasing number of nosocomial infections caused by these organisms.[1] However, there are few studies relating the prevalence of enteric diseases to intramural microbial contamination. This report describes such studies conducted on a pediatric ward in an Indian Health Service Hospital at Whiteriver, Arizona, at the request of the hospital staff.

This ward serves as part of the primary hospital facility for the Apache Indian population of the Fort Apache Reservation and consists of 8 rooms with 2 to 4 patients per room. The incidence of diarrheal diseases in children in this area is perennially high with peak incidence during the fall and early winter months. Studies were conducted in November 1968 when the prevalence of diarrhea among patients on the ward was high and repeated in February 1969 when the prevalence of diarrhea was low.

ENVIRONMENTAL STUDIES

Airborne microbial contamination was measured in each of the rooms and the hallway, using two Reyniers slit samplers operated for 1 hour at each sampling site. One sampler contained a trypticase soy agar (TSA) plate and the other a MacConkey agar (MAC) plate. Fallout of Airborne microbial contaminants was measured at the same locations by exposing one plate each of TSA and MAC for 2 hours at each sampling site.

Surface contamination was measured on an unsoiled horizontal portion of bed sheet from each occupied bed by pressing a TSA Rodac plate and a MAC Rodac plate against the sheet. TSA and MAC Rodac plates were used to sample floor contamination near each bed and in the hallway. The palms of staff members also were sampled using the Rodac plate technique.

Surfaces sampled for microbial contamination by the swab-rinse method included crib guard rails, tops of towel dispensers, faucets, sink bowls, door handles, fingers of staff members, and items commonly handled by ward personnel at the nurses' station and in the treatment room.

A map of the ward was prepared showing the location of all patients and sampling sites. Direc-

From the Phoenix Laboratories, Ecological Investigations Program, Center for Disease Control, Health Services and Mental Health Administration, Public Health Srvice, U. S. Department of Health, Education and Welfare, 4402 North Seventh Street, Phoenix, Arizona.

tion and velocity of air movements were measured at supply and exhaust vents. Temperature and relative humidity measurements were made at various locations and times.

PATIENT STUDIES

Pertinent information was abstracted from the clinical records of the patients occupying the ward on the day of the study. Rectal and throat swabs were taken from each of the patients and rectal swabs were taken from the personnel working on the ward on that day. The rectal swabs were processed for isolation and identification of potential enteric pathogens, and the throat swabs were processed for isolation of coliform bacteria.

LABORATORY PROCEDURES

Air sampling and Rodac culture plates were incubated at 32 C and colonies counted at 48 hours. Surface swabs were immersed in a transport medium (buffered glycerol saline) until processed. Each tube containing 3 ml of transport medium and a swab head was mechanically agitated on a vortex mixer for 5 seconds and then insonated for 12 minutes in an ultrasonic bath. Subsequently, 0.5 ml portions were pipetted onto both a MAC plate and a Bacto-m-FC agar (FC) plate. FC agar was used in the second study only. Two and one-half milliliters of double strength brain heart infusion broth were added to the remaining transport medium and swab head, the tubes were incubated for 18 hours, and streaks for isolated colonies on MAC and FC plates were made.

MAC plates were incubated for 24 hours at 32 C and FC plates were incubated for 24 hours in a water jacketed incubator at 44.5 C. Typical colonies were inoculated into lactose broth. Positive lactose tubes (gas) were used to inoculate brilliant green bile lactose broth and EC broth for confirmation of coliform and fecal coliform bacteria respectively. Enteropathogenic *Escherichia coli* were serotyped.

RESULTS

At the time of the first study (November 1968) more than 50% of the ward population for at least 2 months had been composed of patients with diarrhea. Although there was suspicion of in-hospital acquisition of gastrointestinal infection, this was difficult to document. Sixteen of 24 patients (67%) on the ward at the time of the first study had gastroenteritis. Only 2 of 21 patients (10%) on the ward at the time of the second study had gastroenteritis, and there had been a low prevalence of diarrheal disease for at least the preceding 3 weeks.

TABLE 1. Levels of Microbial Contamination on a Pediatric Ward

Type of Sample	TSA Nov.	TSA Feb.	MAC Nov.	MAC Feb.
Air — settling viable particles/sq. ft./hr.	882	1,931	6	15
Air — Reyniers viable particles/cu. ft.	21	25	9	11
Sheets — Rodac viable particles/sq. ft.	4,392	3,672	101	61
Floors — Rodac viable particles/sq. ft.	9,720	5,724	223	112
Staff palms — Rodac viable particles/sq. ft.	3,240	2,988	0	0

Table 1 presents data which define the general level of microbial contamination of the ward environment in November (when gastroenteritis was prevalent) and in February (when the prevalence of gastroenteritis was low). There was a decrease in viable particles per square foot on sheets, floors, and palms of the staff, no decrease in air contamination as measured by Reyniers samples, and an increase in contamination measured by settling plates. Environmental contamination with microorganisms of fecal origin for both studies is shown in Table 2.

TABLE 2. Occurrence of Microorganisms of Fecal Origin in Environmental Samples

Sample and source	No. samples each survey Nov.	No. samples each survey Feb.	% positive for microorganisms of fecal origin Nov.	% positive for microorganisms of fecal origin Feb
Rodac — floors	31	38	65	11
Swab — towel dispensers	10	10	50	40
Rodac — sheets	27	30	33	17
Swab — staff fingers	15	15	33	0
Settling — air	10	10	30	60
Swab — crib rails	27	30	22	10
Reyniers — air	10	10	20	10
Swab — door handles	8	8	13	13
Swab — sinks	10	10	10	10
Rodac — staff palms	15	15	0	0
TOTAL	163	176	31.9	14.2

During the second study there was a decrease in the percent of positive samples taken from floors, towel dispensers, sheets, fingers of staff members, crib rails and Reyniers air samples. However, there was no change in the percent of positive samples from sinks, door handles, and palms of the staff. The only samples which showed an increase in the percent positive for microorganisms of fecal origin were settling plates. This increase, as well as the increase observed in the total counts on settling plates, was not in agreement with the downward trend observed

in most other samples during the second survey and may have resulted from a sampling bias. These samples were collected during the first 2 hours of each survey while all other samples were collected throughout the course of each survey (approximately 6 hours). It appears possible that some aerosol generating activity such as bedmaking or floor cleaning during this 2-hour sampling period of the second survey could account for the observed increases in settling plate samples without affecting the overall level of contamination.

Table 3 compares prevalence of gastroenteritis, *E. coli* in throat swabs from patients, and microorganisms of fecal origin in environmental samples between the November and February studies. It is apparent from these data that *E. coli* isolations from throat swabs and the isolation of microorganisms of fecal origin from the environment were markedly lower at a time when there were few patients with diarrhea on the ward than when a large portion of the ward population had diarrhea.

TABLE 3. Relationship of Prevalence of Gastrointestinal Illness to Presence of Enteric Microorganisms in Throats and Environment

	November		February	
	No.	%	No.	%
Patients with gastrointestinal illness	16/24	67	2/21	10
E. coli isolated from throat	13/24	54	2/21	10
Organisms of fecal origin in environmental samples	52/163	32	25/176	14

Rectal swabs taken during the first study were negative for enteric pathogens except for serologically distinct *Shigella* spp. isolated from each of two patients and *E. coli* 0126:B16 isolated from one of the 15 swabs from ward personnel. Rectal swabs taken from two patients in February were positive for *Salmonella oranienburg* and *E. coli* 0127:B8; all other rectal swabs were negative for pathogenic bacteria. Environmental samples from the sheet, crib rail, and air in the room of the patient harboring *E. coli* 0127:B8 were also positive for the same organism.

Ventilation of the ward was inadequate. The supply and exhaust systems provided less than one air change per hour for the entire ward and there was considerable mixing of air from the various rooms. There were no notable differences in environmental contamination levels between rooms or ward areas and this may well have resulted from these deficiencies in ventilation. The mean temperature and relative humidity were 81 F and 15% and 75 F and 24% for the first and second studies respectively.

COMMENT

Numerous studies in the past few years have documented a change in the pattern of nosocomial infections.[1, 2] Whereas staphylococci were of greatest import in previous years, recent data show an increasing frequency of gram negative enteric bacteria as etiological agents in hospital acquired infections.[1] Although investigations of in-hospital outbreaks of infections due to *Klebsiella pneumoniae*,* *Pseudomonas aeruginosa*[3] and *Salmonella* spp.[4] have incriminated solutions, apparatus and personnel as reservoirs for potentially harmful microorganisms, there is little information relating to the contribution of patient populations to the microbiological milieu of a hospital ward.

The survival time of coliform organisms in aerosols and on inanimate objects depends upon the nature of the carrying gas and liquid media, temperature and relative humidity.[5, 6, 7, 8] Although isolation of large numbers of these bacteria has not previously been reported, the present study indicates that when diarrhea is prevalent on a pediatric ward there are numerous enteric contaminants on surfaces, hands of personnel and in the air and that the environmental contamination level decreases concomitantly with a decrease in the prevalence of diarrhea. One would expect that a general increase in environmental contamination would increase the probability of infecting susceptible patients with potentially pathogenic microorganisms in the hospital. The paucity of data comparable to those presented here precludes any statement about the absolute significance of contamination levels, but compared with some previous studies conducted in surgical suites and other environments this study showed a relatively high level of microbial contamination in the environment.[9] However, the means of 21 and 25 viable particles per cubic foot of air for the November and February studies respectively are comparable with the means of 25.7 colonies per cubic foot of air found in hospital pediatric areas by Greene *et al.*[10] Further studies would help to determine the quantitative significance of contamination in intramural hospital environments.

*Adler, Jonothan L. (Unpublished data). Nosocomial kanamycin-resistant Klebsiella pneumoniae types 2 and 11 on a premature nursery. Prsented at the 1969 Annual Epidemic Intelligence Service Conference, National Communicable Disease Center, Atlanta, Georgia.

Although sporadic reports of *E. coli* pneumonia have appeared since 1891, the possibility of airborne transmission of this organism has been largely ignored in the medical literature. In discussing the 52 previously reported cases and 20 new cases of this disease in 1967, Tillotson and Lerner emphasize the probability of aspiration and hematogenous routes of infection.[11] However, such routes are not clearly established in all cases.

Mackel and Ganelin** describe an outbreak of upper respiratory infection among infants in the premature unit of a large hospital in which *E. coli* 0:4 was the responsible agent. Two of the infected infants developed severe bronchial pneumonia, and one adult attendant had upper respiratory symptoms with *E. coli* 0:4 isolated from a nasopharyngeal specimen. During the outbreak, *E. coli* 0:4 was isolated from several sites in the environment, but air samples were negative for this organism. Airborne transmission of *E. coli* 0:4 was strongly suggested.

Our isolation of enteropathogenic *E. coli* (0126:B16) from air in proximity to a patient infected with the organisms represents one of few instances in the literature in which this phenomenon has been recorded. Laurell *et al.*,[12, 13] in 1951 in the investigation of an outbreak of diarrhea and vomiting among infants hospitalized due to *Bacterium coli neapolitum* (*E. coli* 0:111 B:4) (BCN), isolated this organism from air on two occasions during an epidemic. The authors found BCN more easily isolated from air when patients harboring the organisms in their throats were on the ward, and suggest that transmission was occurring via the airborne route.

In studying the modes of spread of gastroenteritis in a pediatric ward, Rogers found that BCN could be isolated from air and surface samples in rooms where patients harboring the organism resided.[14] His data also showed that activities such as bedmaking serve to create "showers" of organisms in the surrounding air.

In our study the high levels of fecal coliform bacteria in air samples, the isolation of enteropathogenic *E. coli* from air, and the greater frequency of coliform organisms in throat swab specimens from ward patients during a period of high prevalence of diarrhea suggest the possibility of airborne spread.

It is of interest that these studies failed to show a difference in contamination levels of air and surfaces between rooms occupied by patients with diarrhea and those occupied by patients with other disorders. This presumably resulted from inadequate ventilation and thus generally stagnant air throughout the ward as well as transfer of microorganisms from room to room by ward personnel.

On the basis of these findings recommendations were made to improve the ventilation of the pediatric ward. In particular it was suggested that each room be exhausted at a rate that will change the air in the room a minimum of six times per hour and maintain each room at a slightly negative pressure with respect to the hall. These conditions will assure that airborne contamination generated in each room will be quickly removed and will not be transported into the hall for further dissemination. It was also recommended that scrupulous handwashing and other hygienic measures such as vigorous floor and surface cleaning be maintained at all times. This is of particular importance when the prevalence of diarrhea on the ward is high and contaminated horizontal surfaces serve as reservoirs of microorganisms for both airborne and contact modes of spread.

**Mackel, Don C., and Ganelin, Robert S. (Unpublished data). Association of Escherichia coli 04 with an outbreak of respiratory illness among premature infants. Presented at the spring meeting, Arizona Branch of the American Society for Microbiology, May 16, 1964, Phoenix, Arizona.

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Editor's Page

WE WANT EXCELLENT MEDICAL CARE FOR ALL

On August 27, 1970 Senator Edward Kennedy (D. Mass.) was joined by fifteen senators in introduction of legislation to inaugurate a federal health security program covering all people. The cost estimate was $40 billion a year based on 1968 levels with financing through a trust fund which would be developed from general federal revenue (40%), a 3.5% tax on company payrolls (35%) and from a 2.1% tax on individual incomes up to $15,000 a year (25%). The plan would not fully cover nursing home care, psychiatry, dental, and certain drugs and appliances.

At present our Social Security Administration says that federal assistance programs (Medicare, Medicaid, etc.) now underwrite 69% of the costs of health care incurred by patients over the age of 65 ($9.5 billion in 1969). Thirty-one percent of individuals over 65 paid their own health expenses ($3.2 billion in 1969). Thus $12.7 billion were spent on health care by persons over 65 in 1969. Kennedy's $40 billion estimate is obviously ridiculously low if the Medicare-Medicaid experience and the effects of inflation are transposed to an entire population. His plan also involves increasing the problems of Medicare. On the other hand $40 billion could buy 40,000,000 deserving people private comprehensive health insurance policies at $1,000 per annum with most of the administration at a local level.

Certain representatives of the poor and from the political arena mis-read the desires of the health professions to provide excellent medical care for poor, rich, the rest of us, all races, and all creeds in the United States. The problems of accomplishing this accepted goal include (1) the medical needs of both minority and majority groups in our society, (2) the most efficient and humane method or methods to satisfy these needs, and (3) the equitable financing of medical care. No program in any country is without flaws. Because of the nature of American society, there are no simple answers, but we do have the knowhow and desire to solve these problems according to the methodology of a *free* society rather than as so many government statistics.

Why should a working man or woman, or anyone else, be taxed in order to pay for the medical needs of a person who is able to pay his own way? This money is better used for those who need it more. Many middle and low income persons bitterly resent contributing to the medical care of an affluent retiree and rightly so. Such a policy has added to the cost of Medicare. This mistake should not be continued nor extended to any other age group except for inability to care for themselves. We'll not be able to afford a desirable system of medical care for all and maintain our present standards of excellence unless this premise is accepted.

A major first step in providing excellent health services for everyone in Arizona would be to work out a mechanism to provide a comprehensive health insurance policy from private insurance carriers and preferably with plans such as those of the Maricopa or Pima Medical Foundations to all families or individuals who can show need. A proper Social Service investigation initially and periodically would be the basis for eligibility. The policies should encourage home, office and outpatient care as well as provide for hospital and extended care. Eligible individuals would then have access to the physicians and hospitals of their choice and all could have excellent private care. County hospitals could become private hospitals and the freedom of patients, health professionals and of the economy would be strengthened. A federal grant would be needed to bring some financial support to the program. Interstate and other relationships would follow.

Medical leadership and collaboration are mandatory if the public is to receive the best possible medical service. It is hoped that appropriate representatives from the Arizona Medical Association, the poor of Arizona, the Arizona Health Authority, and of the Arizona Legislature will meet in the near future to explore such a plan to provide excellent medical care for all in the framework of a free society.

John R. Green, M.D.

President's Page



ARE WE TO PARTICIPATE

Fortunately or unfortunately depending on how you look at it, this President's Page will be read by only a few, and I feel it is most important that we realize immediately that the forces moving toward total reorganization of our medical structure will not wait much longer unless we show increased interest in our own problems.

Many national publications are providing most interesting reading, inflammatory in many cases, but in many respects true. However, these truths as they are presented sometimes leave a bit to be desired. To institute change is sometimes difficult, but to resist change may be a tragedy. From all I read, we are being crucified as being nothing but obstructionists in the changing concepts of health care.

True, we are credited as being in the forefront on quacks and nostrums, and against the delivery of health care to all that need it. We need to change this, we need to participate in an *active, progressive, vital* program as a cooperative far-reaching and thinking group of professionals. We are in danger of having our entire concepts of medical care changed without having any say in this changing program.

Since 1921 the AMA had successfully fought all attempts to reorganize the delivery of health care until President Johnson signed the Medicare bill. With this, our black eye began to get larger and larger, our motto seemed to be "we would rather fight than switch;" it is with this *impression* we are now saddled.

We are now pictured as against everything in medicine except ourselves in a battle for socio-economic security.

We have a good idea of what is to transpire in the next few years. I think it has been erroneously stated that we have a breather with the Nixon administration. It's time the AMA and *ALL* its membership get with it, so to speak, and begin using all its heads and be a leader rather than an obstructionist group as we are now portrayed.

I think it is time the AMA begins to solicit ideas from its rank and file. How this is to be done may be through the county and state organizations, so when the House of Delegatees meets there will be some information that the membership will know about in advance; not like the fiasco that occurred with the dues structure raise when *no one,* including the delegates themselves, had any idea what was going on or why, when no advance information had been given to the delegates let alone the rank and file membership.

I would ask all members of the Arizona Medical Association to give thought to our problems. If you are not a member of your county or state medical Association Board of Directors, talk to these men and especially to your delegates to the AMA. Voice your opinions; for if you fail to exercise your right to speak up, you have lost a great deal. It may be very important to your way of life in your chosen profession. The time is *now* not tomorrow. So I urge you in everyway I can, to not ignore these vital issues.

Fred H. Landeen, M.D.
President

Dean's Page

THE DEPARTMENT OF RADIOLOGY

The first appearance of Radiology, as a department in a new medical school, is not subject to the same pressures that accompany the academic disciplines that require early entry in the curriculum. Further, since the radiologist is one of the hospital-based physicians he has no "home" until the hospital is ready for occupancy. The latter is not quite true, of course, because there is much planning, selecting of equipment and hiring that must be done before the hospital can be operational and one needs the radiologist if these tasks are to be done well. Arizona has now arrived at that point in time. Students are in their clinical curricula and we will be ready to occupy the University Hospital shortly.

In considering the mission that a Department of Radiology can play in a university medical center there are several considerations that might occupy one's attention. We have focused primarily on two. Our first concern was that the department should be capable of generating a high level of visibility, among its colleagues and associates in the Medical Center, with its own programs in radiological and radiobiological research. In university medical centers where this objective has not been pursued departments of radiology have tended to take on a service orientation which, while eminently desirable from the viewpoint of those who need such services, acts to deny the academic community the uniquely valuable contribution which only the academic radiologist can make.

Second, consideration had to be given to the relative roles of diagnostic radiology and therapeutic radiology. In some settings these are considered as being separate entities with coequal status. In those instances in which the two-department phenomenon has occurred, it was an outgrowth of an earlier arrangement in which both forms of radiology were considered part of a single department. We have started this College on the premise that we should keep the total number of new departments as small as possible within reason during our early period of organization. Consequently, we have elected to keep all of radiology under single leadership.

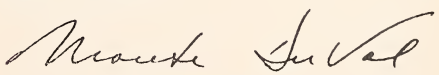
We have recruited a Head for our Department of Radiology with these two objectives in mind. Our search has been eminently successful and we are now ready to appoint a man as Head of our Department of Radiology who is prepared to develop a department consistent with these two objectives.

Dr. M. Paul Capp was born in Yonkers, New York and received his bachelor's degree at Roanoke College, after which he enrolled in the Duke University Graduate School of Physics. After two years in physics, he entered the University of North Carolina Medical School and received his M.D. degree from that institution in 1958. His postgraduate training consisted of a straight internship in pediatrics and a residency in radiology, all at the Duke University Medical Center.

Dr. Capp has had an interesting teaching history. He started as a Laboratory Instructor in Physics at Roanoke College and went on as a Teaching Assistant at the Graduate School of Physics at Duke. After completing his medical training he took over as Radiologist-in-Charge of pediatric-cardiology, Director of the Pediatric-Radiology Program and Director of the Teaching Program in Diagnostic Radiology, all at Duke University. Simultaneously, he rose through the academic ranks at Duke. When he left Duke for Arizona he was Director of the Diagnostic Division of the Department of Radiology and Associate Professor of Radiology.

Dr. Capp is a member of a large number of distinguished radiological associations and is certified by the American Board of Radiology. He is the author of a number of fine contributions to the radiological literature. His research emphasis has been on cardiovascular radiology.

All of us at the Arizona Medical Center are pleased to welcome Dr. Capp into our midst. We are confident that he will develop a Department of Radiology that will be a source of great pride to all of us.





ARIZONA MEDICAL ASSOCIATION'S MALPRACTICE INSURANCE PLAN

paul b. jarrett, m.d.

Our Editor, Dr. Green, has asked for an article on the malpractice plan submitted to the Association from Dr. Landeen and myself.

He has in mind a pro and con discussion since he knows that our President and I hold divergent views on the advisability of the Association widening its horizons to include the insurance business.

It doesn't seem to be wisdom for physicians to get into a business that all of the insurance professionals and big brains are getting out of. When a company that has the advantage of the best actuaries, the most modern computers and years of experience decides that they have lost enough money and are withdrawing professional liability coverage, it takes a special variety of optomist to conclude that he will succeed in today's liability milieu. Not one company has made money in malpractice coverage since 1968. Nettleship, which protected the physicians in Southern California, reported a 22 million dollar loss last year alone. Physicians should have one responsibility, that of providing care for sick people and not indemnifying them against unsatisfactory results, or misfeasance of malfeasance.

The management of the proposed physicians' company would be handled by a management company in return for 12% of the premium dollar. As far as I can determine, the proposed company's experience is in handling two groups; a teacher's group, and a city employee's group, both in California and this effort is solely in automobile insurance. Just how this qualifies them to handle professional liability is not clear.

The agency who writes the policy, and this would include any legitimate insurance broker, is to collect 10% of the premium dollar as a commission. This is difficult to justify in a seller's market with virtually no competition and little to offer in the way of service. Each renewal premium would presumably pay the broker 10% for writing the name and address of the doctor on the form; with a projected premium for a category five doctor of $4100, this commission seems unearned.

The 12% management fee may be proper except that the management is taking no risk. If things work out — fine. If the experience is bad, the solution is simple, raise the premium, or assess the stockholder.

The only valid reason for physicians forming their own malpractice insurance company is to guarantee that coverage will be available regardless of what it may cost. This assumes that the malpractice mess is the doctors' problem. It isn't! It is the public's problem! The way to solve the problem is not to form our own insurance company and thus perpetuate this assualt on the profession. We must solve it in cooperation with the public by pointing out that we cannot continue to serve them by risking the loss of all we have accumulated in a lifetime of service because of a poor result or even an error in judgment. When protection is no longer available from sources other than ourselves, (and

certainly this has been proven to be a money losing proposition under present conditions), something will be done from outside the profession. To form our own company is to admit that this execrable situation is indeed an acceptable way of guarantying a result or the patient's safety. We would be agreeing with a recent opinion of a California Supreme Court Justice who asked, in effect, who is in a better position to compensate a patient for an untoward result, regardless of blame, than the physician who carries insurance for that purpose?

If the physicians of Arizona raise $2,000,000 in stock subscriptions to start the proposed venture, one judgment such as a recent award in Florida for $1,500,000 could rock the plan to its foundation. There is not enough participation or diversification of risk for safety. The big companies have had the advantage in the past of profitable coverage in fields of fire, theft, coprehensive, and life that have helped support the loss in the professional liability department.

Finally, the proposed fee schedule is considerable above current rates although, admittedly, we can anticipate increases if coverage remains available from our present sources, unless we can obtain relief from permissive courts and sock-it-to-em juries. The way to do this is to spend more time and money in getting our story to the responsible public, and in effecting remedial legislation, and realistic compensation regardless of blame; not in taking a plunge into the insurance business.

OUR MOST IMMEDIATE THREAT

fred h. landeen, m.d

If you will carefully note the above title, the words *most immediate* are the key to this article. To absolve ourselves of this threat is probably impossible, but to protect ourselves and to modify the threat by means such as insurance and legislation may be our only salvation.

To expect the legislature to give the medical profession any discriminatory legislation so only we can expect protection, is pure folly. To expect the legislature to study the entire liability area from a legislative standpoint so relief may be expected for this entire field, should be given time, thought, and action. It's with this legislative process, and I am convinced they are quite concerned over our plight, our final aid may lie so that protection can be afforded in the form of insurance.

To carefully inform and document, for these legislators, the facts regarding the economic burden that is being carried by the consumers of medical care, to help these lawmakers realize that medicine in the form of new doctors may be declining in Arizona because these problems are critical, and we know these parts to be true and existent today.

I am the first to agree with those that proclaim, "insurance is not the *only* answer!!!" However, if you are so blind to feel that you can practice without it, especially in a community property state, you are indeed a prime candidate for the couch. I can't imagine anyone in reach of this article that would consider dropping the protection of all his life, health and accident,

automobile, homeowners, or hospital insurance because he knows these insurances to be just that; and a protection he can obtain in no other way.

It is reported that in one entire state (Hawaii), all anesthesiologists and several surgical specialties have had their insurance terminated in as little as three days notice. The only explanation by the carriers was, they were no longer interested in providing coverage. THINK what this would do to you. You can no longer ignore the fact that this is just possible, it has now entered the probable range.

The consumer is now the unknowing loser in all this because all increased costs have to be passed on to your patients. This results in a total increase in the cost of health care and again the socio-economists have a field day with their statistics in comparing us to other countries of their choice in gross national product; in percentage of this to health care; in numbers of dollars spent per patient per year, where statistics may be true, but when subject to interpolation may be entirely different; in the conclusion reached.

It is a well known fact within the insurance industry that when they are unable to provide, for any reason, coverage to a specialty area, a new segment of the industry may be born. This was and is seen with companies such as farm, lumber, hardware, canners, etc., all of which began as a small specialty company. I think the time has come when the insurance industry is not filling our needs nor offering us anything at acceptable or reasonable rates.

To think of doing something about this is repugnant to some, unthinkable to others and terrifying to the rest. Many say, "why should I change or even listen to you when I have present coverage. Why should I take the risk of capital investment if I am not forced to do so?" This is just the fact we are now facing, and the decision is ours.

Since January of this year your Board of Directors have had numerous meetings regarding the insurance problem, culminating in a general meeting on June 28, 1970. At this meeting the IMC (Insuror Management Company), a division of INA (Insurance Company of North America), came to us with a concrete proposal that can be summarized as follows:

1. Conceptual formation of a new company limited to members of the Arizona Medical Association.
2. Professional management with their management fee of 12% of the first year and 10% thereafter.
3. Professional (medical) consultation by participation, so we may help determine how cases should be handled.
4. Guaranteed ten years of insurance with five year renewable options, depending on the profit of the company.
5. Guaranteed reinsurance and umbrella protection so as to protect the parent company against a catastrophic suit; so that the parent (our) company will only have to accept the first $10,000 of any claim regardless of the judgment.
6. Rates based on our statistics, facts and experiences only.
7. Profits returned to the stockholder.
8. Projected expansion into other ancillary lines to the medical profession, such as homeowners, automobile, and other coverage.

These and other ideas may allow us to be a vital factor in determining our future. We are all aware of the critical factors that are before us with the loss of companies in the field, fantastic premium rate increases, furious searches for a new company if you face non-renewability or cancellation, and non-availability of insurance for new physicians coming to Arizona especially in the high risk areas.

Don't think me so naive as to feel any insurance company has the prime motive of our protection, for it is not. Their prime motive, as in any legitimate business, is to produce a profit, and it is so in this case. I don't feel, however, IMC is without risk, for they are establishing a new concept in their industry and have much to lose in not fully researching this endeavor, to make it as fail safe as possible.

I have faith in Arizona medicine, and feel this is, at the present time, our only general hope for our insurance problems. I also feel this is our problem shared, to be sure, by the public, the Bar Association, the legislature and the insurance industry. We need to get our problem to all these people, but in the meantime, your professional life is at stake. In summary, we need two basic facts:

1. Protection in the form of insurance, available to all physicians of Arizona.
2. Legislation that will help us in the field of liability.

(Editor's Note: Thanks to Drs. Jarrett and Landeen for their letters. The Board of Directors of ArMA, following further investigation and advice from actuarial consultants, have decided to delay further planning of a professional liability company until all other options have been closed.)

THE WHITE HOUSE
Washington

April 25, 1970

Dear Students:

The news of your work with the Dope Stop Program has come to my attention. I understand that during the past school year you have given freely of your time to advise younger students on how to get their pleasure from living rather than from drugs.

As you may know, the reversal of the trend toward mounting drug use in our society has urgent priority in my Administration. Every Federal Agency whose work bears on this problem is cooperating in a comprehensive effort to provide new enforcement and interception, more relevant legislation and better rehabilitation. As I have stated on many occasions, however, the key to the entire anti-drug effort is not more law enforcement, but more information and better understanding about drugs in the first place.

In this vitally important phase of our anti-drug campaign, you young men and women are our most effective spokesmen. It is you to whom the youngerstaudents look for guidance and I am convinced that only by the kind of sound leadership that you have demonstrated in the past year as Teen Counselors will we ultimately curtain this saddest of all forms of pollution in our society today.

I was delighted to learn of your splended work and I heartily commend the example you have set for others.

With my best wishes for the years ahead,

Sincerely,
Richard Nixon

The Dope Stop Program takes advantage of the respect in which pubescent children hold teen-agers. It also applies the principle that exhorting others to avoid a bad habit helps one to avoid that habit himself. This teen-ager implemented program has generated the youths' enthusiastic participation, and has received school administrators' support.

Topics Of Current Medical Interest

DOPE STOP — TEEN INVOLVEMENT

Gladys E. Conroy*

Linda, a first grade pupil, entered the nurse's office feeling dizzy, with an upset stomach. To her it was an uncomfortable feeling that would go away. To the school nurse it was a little more serious. Linda had told of a new game her 7th and 8th grade brother and sister had taught her. They played it only when Mom and Dad weren't home. The gasoline can in the garage was the center of the activity for the game. The youngsters, each in turn, sniffed the gasoline until they became dizzy and fell over.

Another story takes place in a fashionable Phoenix neighborhood one afternoon after school. A high school freshman had gathered some ten little youngsters in her backyard and proceeded to introduce them to what she thought was an exciting experience — "blowing pot" (smoking marijuana). Unfortunataely, the youngsters were unaware of what they were getting involved with as drug abuse was not covered in the grade school classroom. The Principal felt it might create a curiosity.

Still another story takes place in the classroom of a Phoenix elementary school. A clenched fist held eighteen birth control pills, which had been confiscated from the family medicine cabinet. Before the teacher was aware of what was going on, the pills had been disseminated among the students, and all but five were consumed.

In these three accounts of drug abuse, who were the pushers? Youth was turning on youth. And that is exactly why the DOPE STOP Program uses youth to communicate with youth in and education-prevention effort. Aimed solely at prevention, DOPE STOP Teen Involvement currently has over 1,300 Maricopa County high school students enrolled as Teen Counselors. On a once-a-month basis, with two or three in a group, the Teen Counselors visit elementary school classrooms, grades five through eight. They give their own reasons for not using dope. In addition, they relate the basic medical and legal facts on drugs in an effort to have the students weigh these facts and decide what their answer will be when the day comes — as it will — that they are approached with the opportunity to experiment with drugs illegally. (Yes, according to police statistics every child will at one time be approached and have to make a decision about drugs sometime during his school career.) If the decision has been made in advance, the child is prepared for that moment. Indeed far more young people are strung out on drugs today who did not make a decision about drugs than those who did.

During the 1969-70 school year participation among the high schools jumped from two in Maricopa County at the start of the semester to 33 at its close in May. Elementary schools gradually opened their doors to the Teen Counselors as they realized the inroads they were making and how they were opening up the lines of communication among the young students. With so many youngsters being turned on by their peers, the Teen Counselors have formed a new identity group (the nonusers) as a counter balance. It is their aim to show that nondrug use is the "in" thing to do. They are also forming the big brother and big sister identity for those youngsters who have older brothers and sisters involved with drugs. One Teen Counselor said of DOPE STOP, " I have belonged to other clubs at school, but the DOPE STOP Teen Involvement has been the most meaningful and gives us a chance to really do something about the problem." A response to her statement came from a third grader who found a hypodermic needle on the way to school. The child heard there were Teen Counselors scheduled to visit the school that day and held on to the needle until she had the opportunity to give it to the Teen Counselor personally.

Teen Involvement is an on-going program currently reaching approximately 30,000 elementary school students each month through visits from the Teen Counselors. It is anticipated that this

*Director, DOPE STOP—Preventive Education, CODAC, 341 West McDowell Road, Phoenix, Arizona

number will continue to increase as more elementary school districts accept the program. Teachers have found the Teen Counselors very helpful in assisting them, through classroom participation, to reveal the areas where emphasis is needed for further discussion and study.

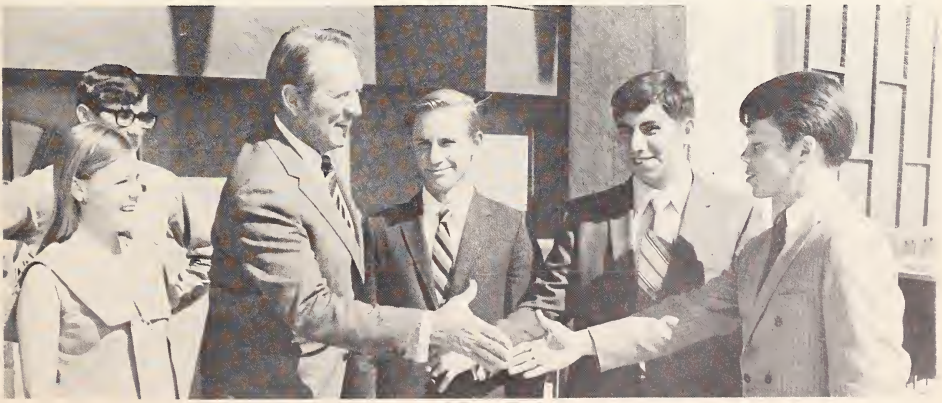
Within the high schools, more students are taking a serious look at the DOPE STOP program as real meaningful involvement. The current Teen Coordinator (a full-time employee of DOPE STOP and a recent high school graduate) supervised a group of DOPE STOP Teen Counselors during his senior year at school. Now, during his once-a-month visit to each high school throughout the County, he acts as resource person providing answers to questions brought back by "Teen Counselors" from the grade schools. He also encourages each high school group of "Teen Counselors" to hold meetings between this once-a-month visit to exchange new ideas and information.

The selection of "Teen Counselors" comes from a list of volunteers within the high school. Screening is done by the high school administration. Strict requirements include that the student is not a drug user, and is sincere in his efforts to put time into learning and spreading the information on drugs. Although the vast majority of the "Teen Counselors" have never been involved with drugs, there are some former users participating in an effort to relate to the grade school students that it is not the way to go. The "Teen Counselors" give answers to questions of the grade school students when they know them. Otherwise, they make note of the questions and bring the answers on their next visit. Thus there is no guesswork, and the youngsters have the confidence of the sincerity of an "I don't know" answer.

The DOPE STOP program was a project of the Maricopa Mental Health Association and operated by the Association during the 1969-70 school year. Now it has become a part of CODAC (Community Organization for Drug Abuse Control). Funded originally by the Mental Health Association, state, county and city, it has now received a grant to continue operating through the Arizona Justice Planning Agency.

Phoenix Police Chief, Lawrence Wetzel says, "DOPE STOP has been of tremendous assistance to our Community Relations Division inasmuch as the "Teen Counselors" are relating the legal ramifications of drug involvement." Art Linkletter, after addressing 2,500 Phoenix students (current Teen Counselors and future candidates) identified it as "by far one of the outstanding prevention programs in the nation." A letter of commendation from President Nixon bedecks the walls of participating high schools. Each 1969-70 "Teen Counselor" through the generosity of the Valley of the Sun Kiwanis Club, received a Certificate of Achievement for outstanding community service as a result of DOPE STOP participation during the school year.

In addition to the 30,000 elementary school students reached monthly through "Teen Involvement" DOPE STOP in its preventive education effort also reaches approximately 2,000 persons weekly through direct presentations to schools, service clubs, churches, corporations, etc. It also works directly in cooperation with the State Department of Public Instruction providing assistance for "in-service" training of educators through its Speakers' Bureau.



Letters to Editor

August 3, 1970
(dictated by Dr. Fishbein
in Athens, Greece)

John R. Green, MD
Editor-in-Chief, ARIZONA MEDICINE
Phoenix, Arizona 85013
Dear Dr. Green:

Your excellent edititorial which you have written on *Medical Planning Or Social Activism* gives me encouragement to keep on in what I am trying to encourage—to get medical students to spend their time studying medicine and not abandoning their patients to carry on political activities.

I am sending all the material along to the Executive Editor in New York. We are going to print some of these letters in our correspondence columns.

Again with my sincere thanks,

Very truly yours,
Morris Fishbein, MD
Editor,
Medical World News

ArMA Reports

THE MINUTES APPEARING IN THIS SECTION HAVE BEEN EDITED TO CONSERVE SPACE. A COMPLETE COPY OF THE MINUTES OF ANY MEETING WILL BE MAILED TO ANY MEMBER REQUESTING THEM.

The Arizona Medical Association, Inc. and The Arizona Hospital Association, Inc.

JOINT MEETING ON ARBITRATION

The joint meeting of representatives of the Arizona Hospital Association, Inc., and the Ad Hoc Committee on Professional Liability Legislation of the Arzona Medical Association, Inc., held at 810 West Bethany Home Road, Phoenix, Arizona, August 29, 1970, convened at 10:12 a.m., Edward Sattenspiel, M.D., presiding.

ROLL CALL

PRESENT:

Representing the Arizona Hospital Association, Inc.: Ralph Bersell, Sister Mary dePaul, Florence Ladner, Blaine Lair, Robert Moore, Scott Parker, and Donald Shropshire.

Representing the Arizona Medical Association, Inc.: Gary L. Barnett, Ray Fife, M.D., Harry J. French, M.D., Edward Jacobson, Philip H. Lahr, M.D., John G. McGregor, M.D., Bruce E. Robinson, and Edward Sattenspiel, M.D.

Guests:

James E. Ludlam, General Counsel, California Hospital Association

Paul H. Newnham, Regional Director, American Arbitration Association

Boyd Orth, Vice President, Farmer-Orth Insurance Agency, Inc.

Robert Redman, Western Insurance Co.

Robert Thomas, Western Insurance Co.

Representative Stuart B. Schoenburg, Arizona State Legislator

Ray Wenzel, Arizona Manager, Farmers Insurance Group.

MINUTES

Following general introductions, Edward Sattenspiel, M.D. introduced James E. Ludlam, General Counsel, California Hospital Association.

Mr. Ludlam explained in detail the background and current status of the demonstration project involving arbitration currently under way with ten hospitals in Los Angeles.

His presentation is summarized in the article entitled "Arbitration As An Alternative Solution to Court Litigation of Malpractice Claims" which is attached as a part of these minutes.

Following several hours of discussion and questions and answers, the group agreed that steps should be taken to develop a similar program in Arizona.

It was determined that each group would take the matter back to their respective Boards of Directors for possible appointments to a joint committee to study this program.

It was pointed out that representatives of the insurance industry and their legal counsels should participate. Meeting adjourned 12:16 p.m.

Edward Sattenspiel, M.D.
Secretary

°California Hospital
Daniel Freeman Hospital
Garfield Hospital
Holy Cross Hospital
Hospital of the Good Samaritan
Long Beach Community Hospital
Memorial Hospital of Glendale
South Bay Hospital
°James E. Ludlam

ARBITRATION AS AN ALTERNATIVE SOLUTION TO COURT LITIGATION OF MALPRACTICE CLAIMS

By
James E. Ludlam, Legal Counsel
California Hospital Association
Howard Hassard, Legal Counsel
California Medical Association

On July 1, 1969, eight Southern California hospitals° embarked upon a demonstration project in the use of arbitration as an alternative to court litigation of malpractice claims against hospitals and the attending physicians.

Unique to this project is the fact that the agreement to arbitrate is included in the Conditions of Admission form executed at the time of admission. Furthermore,

the project is designed to be effected not only as between the hospital and the patient, but also as to the physicians. Although perhaps not unique, it is important to the project that in its final design it incorporated the thinking of nearly 100 people and organizations who were consulted and whose constructive ideas made this truly a joint effort on a broad basis.

Obviously any such project will take several years of experience before its merits can be fully evaluated. However, because of the tremendous nationwide interest expressed in the project this article has been prepared to give all interested parties the background material that led to the specific design of the demonstration project and what is proposed to be tested and achieved.

For historical interest only, the initial concept of the program came to one of the authors* during a sleepless night following a grueling day's meeting on the California Hospital Association's group professional liability program. At that meeting one of the principal issues discussed was the problem of the long delay in determining the actual losses for any claims year. The fact that an insurance company may be collecting preiums based on 1965 dollars and paying judgment on 1970 or 1972 standards, in itself, has been a major deterrent to additional carriers entering the field.

For this and other reasons that will be developed the nocturnal thought of placing an arbitration clause in the Conditions of Admission form had great appeal even in the bright light of day. However, the actual drafting of the final language, the involvement of all of the interested individuals and organizations, all took more than a year to accomplish before the actual project could be placed "on stream."

Even before the practical questions could be faced the basic legal issues had to be resolved. Of first concern was whether or not a form of agreement could be developed that would be mutually binding upon the patient on the one hand and the hospital and attending physicians on the other.

The legal doctrine of "adhesion" would appear to apply to any agreement signed by a patient at the hospital, as succinctly stated by the California Supreme Court in the case of *Tunkl vs. Regents of University of California,* 60 Cal. 2d. 92 (1963): "The admission room of a hospital contains no bargaining table" The legal doctrine of "adhesion" may be defined as holding that an agreement that is executed when one party may be placed in a position in which he cannot effectively bargain may not be binding upon that party if the court finds any element of unfairness or overreaching by the party who originally prepared the agreement. As applied to the hospital admission situation, we can well assume that a court will carefully examine the fairness of any agreement executed by a person who is given the cold alternative of "Sign or not be admitted."

On the other hand, the use of arbitration as an alternative method of settling a legal dispute is looked upon with favor as being in accordance with good public policy. In this regard the California Supreme Court case of *Doyle v. Giuliucci,* 60 Cal. 2d. 606 (1965), is particularly important. This case involved a challenge to an arbitration clause contained in a subscriber agreement of the health insurance program of the Ross-Loos Medical Group. The arbitration agreement applied to all disputes between the subscriber and the Ross-Loos Group including malpractice claims. In this particular case the claimant was a minor child who enjoyed dependent coverage under his father's policy. The California Supreme Court not only bound the child to the contract executed by his parent but approved of the use of arbitration for settling such a dispute by stating:

> "The arbitration provision in such contracts is a reasonable restriction, for it does no more than specify a forum for settlement of disputes."

Since the *Tunkl* case involved a paragraph in the Conditions of Admission form which required the patient to waive any right to claim negligence against the hospital, it is obvious that the element of bargaining power and fairness was a critical issue.

It is not hard to distinguish the situation of an applicant for health insurance from the patient in the admission room. However, the Ross-Loos case did satisfy the public policy question as to the use of arbitration. To solve the adhesion problem we took a two-step approach which we believe is not only fair and equitable but will also be legally binding. First, we gave the patient the right to delete the clause by simply placing a checkmark in a box directly above the patient's signature. The admission clerks are instructed to accept such deletion without question so the element of compulsion is thus eliminated. Secondly, the clause provides it can be deleted by simple written notification given by the patient within thirty days of the date of patient discharge. Under longstanding procedures in California hospitals the patient or his representative is given a copy of the Conditions of Admission form which he signed. If for any reason the patient merely scanned over the form or did not fully understand it, he has a reasonable period of time to study his copy. If he then fails to repudiate it, he is bound by its terms. Although a number of different time periods were suggested, the period of thirty days after discharge was chosen as being more than an adequate period of time and clearly fair.

Satisfied with the solubility of the initial legal problems, legal counsel for the California Hospital Association then contacted the California Medical Association and the principal insurance carriers for doctors and hospitals in the area to obtain their reactions, questions and suggestions. From this point on the project officially became a joint undertaking of the CMA and CHA. It was also at this point that a preliminary decision was made to use the services of the American Arbitration Association as the impartial body to administer the program. This was a most fortunate decision because the wealth of experience and expertise that members of its staff brought to the development of the design of the project has been invaluable. It should be pointed out that under California law there are several different arbitration procedures that could be established by the parties — the most common being a procedure under which each of the parties selects an arbitartor and, if they cannot agree, then those two select a third whose decision is binding. From our point of view this smacked too much of a negotiated settlement and we preferred the American Arbitration system which we believe is more clearly designed to reach a rational judgment of

right or wrong. In any event, the actual details of the arbitration process and the special rules developed with the American Arbitration Association for this project will be discussed later in this article.

We were pleased to have the full cooperation of the principal carriers for most of the doctors and hospitals requested to join in the project. Without their approval, there would, of course, have been a serious question as to whether or not the use of an arbitration clause by a doctor or hospital would trigger the noncooperation clause in the insurance policy.

Needless to say, both the doctors and the insurance carriers had many suggestions as well as questions. Many of the questions can only be answered by the actual experience under the project. Some of these are:

1. Will the availability of arbitration increase or decrease the number of claims?
2. Will settlements be encouraged or discouraged?
3. Will a sophisticated arbitration panel come in with larger judgments than a jury on comparable facts?
4. Will an arbitration panel tend to render compromise verdicts in doubtful cases?
5. How will the cost of defense of an arbitration case compare with a court litigated case?
6. What happens if one doctor has agreed to arbitrate and another has not?
7. Does the arbitration clause apply to fee disputes?
8. How is the process of discovery to be handled?
9. How are judgments to be allocated as between the defendants?
10. What if the patient dies — is his executor bound?

Even though many of these questions cannot be answered it was our joint belief that the project should go ahead with a limited number of hospitals in a restricted geographical area. We further agreed that in each hospital the participation must be approved by the Governing Board, the insurance carrier for the hospital, the Executive Medical Board, the insurance carriers for the bulk of the physicians on the Medical Staff, a substantial majority of the members of the Active Medical Staff and, last but not least, by a joint committee of the California Hospital Association and the California Medical Association that made the initial selection.

Needless to say, the open sessions at which we explained the program to each individual hospital medical staff were most stimulating, and as a result a number of constructive changes were made in the already many times redrafted documents. Of great importance to the physicans was the fact that the mere fact that the hospital elected to participate did not bind all of the members of the medical staff to join. Each physician received a card under which he elected to participate or not to participate. Evidence of the interest and support was the fact that in all hospitals the physicians admitting more than 80% of the patients, and in most more than 90% of the patients, elected to participate.

In our presentation to the medical staffs we pointed out the pros and cons of the program and in particular the unanswered questions that we have previously enumerated. As our particular goals we stated that we hoped:

1. To speed up the handling of claims so that they can be disposed of — months as against years in court;
2. That a doctor's time in litigation would be substantially reduced because of the time saving features in arbitration;
3. To save the time of doctors, witnesses and lawyers by reason of time saving features of the arbitration process as contrasted with jury litigation;
4. To assure a high degree of sophistication in the decision process;
5. To minimize the potentials of frivolous appeals because of the recognized finality of an arbitration award;
6. To limit publicity through the general confidentiality of the arbitration process as contrasted with the flamboyant aspect of many jury trials;
7. To limit the amount of those judgments that may have been established by emotion and theatrical appeals to a jury.

At the end of this rather lengthy involvement process the joint CMA-CHA Committee approved the final language for inclusion in the Conditions of Admission form as well as the "Hospital Arbitration Regulations" developed with the American Arbitration Association.

These two statements will be analyzed separately because each word and phrase has important significance and in most instances was rephrased many times. The key statement is, of course, the language in the Conditions of Admission which reads as follows:

> "6. *Arbitration Option*: Any legal claim or civil action in connection with this hospitalization, by or against hospital or its employees or any doctor of medicine agreeing in writing to be bound by this provision, shall be settled by arbitration at the option of any party bound by this document in accordance with the Commercial Arbitration Rules of the American Arbitration Association and with the Hospital Arbitration Regulations of the California Hospital Association (copies available at hopsital admission office), unless the admitting physician has not agreed in writing to be bound by this provision, or unless patient or undersigned initials below or sends written notification to the contrary to the hospital within thirty (30) days of the date of patient discharge.
>
> If patient, or undersigned, does not agree to the 'Arbitration Option,' then he will initial here. . . ."

The significance of the language used bears further exposition. The paragraph is labeled "Arbitration Option." The reason for this is that under the concept adopted the use of arbitration is not mandatory unless either party elects to trigger the arbitration process, at which time it does become binding. It was recognized that there could well be cases which could more appropriately be handled in the courts than in arbitration. Perhaps experience will prove that the option approach is not indicated and should be eliminated.

The clause provides that "any claim or civil action in connection with this hospitalization" This language makes the clause effective as to all claims including fees or the hospital bill as well as malpractice so long as it relates to the hospitalization. "by or against hospital or its employees or any doctor of medicine agree-

ing in writing to be bound by this provision" This phrase again makes the process work both for and against the hospital and the physician as well as the patient, but limits it to those doctors who have agreed in writing to be bound. The names of these doctors are available at the admissions office in the event of an inquiry by the patient. "shall be settled by arbitration at the option of any party bound by this document in accordance with the Commercial Arbitration Rules of the American Arbitration Association and with the Hospital Arbitration Regulations of the California Hospital Association (copies available at hospital admission office), ..." As previously explained, this clause specifically limits the type of arbitration to that sponsored by the American Arbitration Association under its Commercial Rules, plus the special rules developed to handle the problems peculiar to the hopsital setting. The need for the availability of the rules is obvious. "unless the admitting physician has not agreed in writing to be bound by this provision" This was the last major addition to the paragraph. Our discussions with the various medical staffs indicated a proper concern for the role of the admitting physician. It was agreed that as the captain of the ship he should set the pattern. If his consultants did not choose to join, that would not be nearly as serious as if a consultant could trigger arbitration without the participation of the admitting physician. "or unless patient or undersigned initials below or sends written notification to the contrary to the hospital within thirty (30) days of the date of patient discharge." This language has been fully explained earlier in the article.

Contemporaneous with the development of the arbitration clause in the Conditions of Admission form was the development of the document which came to be known as the "Hospital Arbitration Regulations." This arose from our initial determination that the standard "Commercial Arbitration Rules" of the American Arbitration Association (available at any local office of the AAA or through its headquarters at 140 West 51st Street, New York, New York 10020) were not entirely suited for the handling of a complex professional liability case. The representatives of the AAA suggested that we consider following the lead of the construction industry and prepare a set of special rules which, if deemed fair and equitable by the AAA, would be approved by it as being applicable to our special situation. To simplify our procedure we merely modified and supplemented the Commercial Rules rather than completely restating them as was done by the construction industry. Since the Commercial Rules are not set forth in this article it should be noted that they set forth the procedural rules for initiating the arbitration, the place of hearing, the appointment of the arbitrators, the details as to the actual conduct of the hearing, the rules of evidence, the nature of the award, the fee schedules, and similar items.

Because of the importance of the Hospital Arbitration Regulations to the conduct of the demonstration project, they will be set forth paragraph by paragraph with such additional comment as may be indicated.

Section 1. *General Provisions*: These regulations shall be employed in conjunction with the Commercial Arbitration Rules of the American Arbitration Association and shall, in the event of conflict between these regulations and any such rule, be controlling in any arbitration initiated pursuant to "Arbitration Option" in the hospital's "Conditions of Admission" document.

Comment: This is an introductory paragraph which ties the Regulation to the arbitration option in the Conditions of Admission form of the hospital and incorporates the relevant sections of the AAA Comercial Rules unless there is conflict.

Section 2. *Initiation under the "Conditions of Admission" document*: Unless barred by the Statute of Limitations, any legal claim or civil action by or against a hospital or its employees or a doctor of medicine may be settled by arbitration if such procedure is authorized by the hospital's "Conditions of Admission" document. Any party bound by the "Conditions of Admission" document may exercise an option to compel arbitration at any time; provided, however, that all parties involved in a civil action must be afforded an opportunity to intervene in such arbitration, and the court in which the action was filed shall retain active supervision over the action until the completion of discovery unless all parties bound to or agreeing to arbitration otherwise agree in writing.

Comment: This section is very important and involves a number of fundamental decisions. In the first place, it clearly indicates that the agreement to arbitrate does not constitute a waiver of the statute of limitations. Next, it authorizes the appropriate parties to initiate the arbitration at any time in the proceedings with two conditions. The first is that all parties to any suit must be permitted to join the arbitration proceedings. The purpose of this is to avoid the arbitary exclusion of any defendant who had not been bound by the Conditions of Admission clause. This could include an equipment manufacturer, a drug supplier, a physician who had not agreed in advance to participate in the arbitration proceedings, a hospital employee, etc. In other words, our interest was to make it possible for all parties to participate in the arbitration rather than making it necessary to have two separate proceedings — one by way of arbitration and the other by way of court litigation for those not bound by the arbitration clause. However, it should be pointed out that participation as to those not bound is elective as would be true in any other arbitration proceedings. The second condition provides that the court shall maintain jurisdiction until the completion of discovery proceedings unless waived by all of the parties. This is an unusual provision in an arbitration agreement but was included because the rights to discovery in California are much more limited in arbitration than under court proceedings. It was our desire to avoid any claim that we were attempting to deny the plaintiff or other defendants to their legal rights of discovery. Of passing interest is the fact that a proposal to give the same rights to discovery in an arbitration proceeding as in court was proposed to the California Legislature in 1969 but failed passage. If such a law were to pass this portion of the paragraph could be eliminated.

Sub paragraphs (1) and (2) of Section 2:

(1) If a civil action has been filed, a party thereto wishing to compel arbitration shall file with the court, and serve upon each party to the action, the following: (a) a petition to compel arbitration pursuant to Section 1281.2 of the Code of Civil Procedure, (b) a copy of the hospital's "Conditions of Admission" document and of the Commercial Arbitration Rules and of the Hospital Arbitration Regulations, (c) an affidavit and/or statements on information and belief that all essential parties have been served with process or have appeared generally in the action, and (d) a time and date which shall be no less than ten days from date of service for hearing of the petition. Prior to the date set for hearing the petition, any party not bound by the "Conditions of Admission" form who has been served with the above may elect in writing to intervene in such arbitration. Failure to do so shall be deemed an election not to intervene. Any other person, including a corporation or other entity, whose participation is considered by the court to be material or relevant to a full and complete settlement of the dispute may be requested to join the arbitration. If, within ten days of such service, the person files with the court a written consent to arbitrate, he shall be able to participate fully in the arbitration with the same rights and privileges as any other party to the arbitration. He will be bound by the arbitration award as will be all other parties to the arbitration. The court may order arbitration after having assured each party to the arbitration a reasonable opportunity to complete discovery unless it is waived.

(2) If the arbitration is initiated other than through the procedure outlined in paragraph (1), any person, including a corporation or other entity, whose participation is relevant or material to a full and complete settlement of the dispute may be requested to join in the arbitration. Such a request must be made by a party to the arbitration and must be filed in writing with the AAA. Only one party to the arbitration needs to make such a request. All other parties to the arbitration are deemed to have consented to the joinder of any person when such joinder is requested by a party to the arbitration. The AAA will notify the other parties to the arbitration of the request. It will send a copy of all demands, answers or counter-claims presently on file, together with a copy of the rules and regulations governing the arbitration, the request to arbitrate and an agreement to arbitrate, to the person whose joinder has been requested. If, within ten days of the mailing by AAA, that person signs the agreement to arbitrate and returns it to the AAA, he shall be able to participate fully in the arbitration. He shall have the same rights and privileges as any other party to the arbitration. He will be bound by the arbitration award as will be all other parties to the arbitration. Any disputes concerning the joinder of parties, including relevancy and materiality, shall be settled by the Arbitrator.

All parties to an arbitration initiated through the procedure outlined in paragraph (2) shall have the right to use any discovery procedure which would have been available in a civil action pursuant to California Code of Civil Procedure, Sections 2016 through 2036. The Arbitrator may regulate such discovery.

Comment: These paragraphs are self-explanatory and merely set forth in some detail the procedural method of initiating the arbitration and inclusion of other parties.

Section 3. *Scope of Award*: The Arbitrator shall grant such damages as he deems just and equitable. In assessing such damages, the Arbitrator shall ascertain the degree to which each party to the arbitration was at fault for the total damages accruing to any other party to the arbitration as a result of the factual situation upon which the arbitration was based, taking into account all sources of such damages involving parties to the arbitration but excluding the damages attributable to persons not parties to the arbitration. His award shall be based on such responsibility. Each party to the arbitration shall become jointly and severally liable for the entire amount of the arbitration award; provided, however, that for purposes of contribution among the parties to the arbitration, the Arbitrator shall prepare a schedule of contributions according to his assessment of the relative fault of all parties to the arbitration which shall be binding as between them.

Comment: This is a very important section. It not only sets the standard for assessment of damages as being what the arbitrator "deems just and equitable," but also requires the arbitrator to ascertain the degree to which each party was at fault and assess damages accordingly. This provision was devised to solve the bitter controversies over how an award shall be split up between the defendants. Also, it permits the arbitrator to adjust the award based upon the fault of the palintiff under what might be classified as a comparative negligence approach. We believe that this should reach a fairer result, particularly in those cases in which the plaintiff may not have properly acted to minimize damages or other conduct that is not necessarily the equivalent of contributory negligence. However, it is important to point out that just as in the case of a court award the judgment is joint and several, so that the assigning of individual responsibility does not deprive the plaintiff to recover from any defendant found liable even if one of the other defendants is uninsured or underinsured. Much thought was given to this paragraph and we will be most interested to see how it works out in actual practice.

Section 4. *Administrative Fees*: The administrative fee shall be $300 per case or according to the schedule of the American Arbitration Association in effect at the time of filing or at the time of refund. If there are more than two parties represented in the arbitration an addition $150 will be due for each additional party.

$150 of the administrative fee shall be advanced by the initiating party or parties at the time of filing with the AAA, subject to final apportionment by the Arbitrator in his award.

The remaining $150, per party, administrative fee shall be paid by the noninitiating party or parties prior to the appointment of the Arbitrator and subj-

ect to final apportionment by the Arbitrator's award.

Comment: Although the initial fee may appear to be high, there is a substantial cost to the AAA in setting up the arbitration procedure. The AAA has a procedure set up for waiving this fee in hardship cases. It is our hope that the time involved in an arbitration proceeding will be substantially less than would be a jury trial, for example, so that the overall costs, including arbitrator's fees will be substantially less than a court proceeding. In other words, we hope that there will be a substantial savings in lawyers and witness time. Also, since appeals from an arbitration award are rarely successful, there should be substantial savings relating to the costs of the appeal.

Section 5. *Number of Arbitrators*: Where the amount claimed by all parties to the arbitration totals less than $20,000, the dispute shall be heard and determined by one Arbitrator who shall be a lawyer. If the total amount so claimed exceeds $20,-000, the dispute shall be heard and determined by a Panel of three Arbitrators, composed of one lawyer, one businessman, and one person from the field of health. All arbitrators shall be chosen from panels composed by the American Arbitration Association. When appropriate, references in these regulations to a single "Arbitrator" shall mean a Panel of three arbitrators.

Comment: Again, this is a paragraph that caused considerable discussion. In actual practice the AAA has many volunteer arbitrators who will serve on a short arbitration, such as a one-half or full day, without charge. Also, we did not want to burden the costs of the proceedings with multiple arbitrators unless the plaintiff had put a substantial price tag on the cause of action. However, if the case were to be substantial, it was our belief that it deserved a three member panel with a broad background. This is obviously going to be a sophisticated panel which should be able to give a fair judgment on even a very complex case — a criticism as to the contrary that is all too often leveled at the jury, by the loser. On the one hand, such a panel may be less influenced by emotion but, on the other, it may establish substantial value on human life and suffering. This was a calculated risk that all were willing to take.

As previously indicated, the arbitration process of the American Arbitration Association varies in certain important details from the standard form of arbitration established by various State Laws. Under the AAA procedures the arbitration process is initiated with the filing of a written "Demand for Arbitration" with the local office of the AAA. At this point an AAA Staff member takes over the complete administration of the case including the expediting and assisting both sides in all procedural matters until the award is rendered. Upon receipt of the Demand for Arbitration the local AAA administrator sends identical lists containing the names of technically qualified arbitrators to both sides, who then have a period of seven days to object to any of the arbitrators on the list and to number the remaining ones in order of preference. The numbers are matched to make the final selection or, if there is no matching, an additional list is submitted. The hearing is conducted in a manner somewhat similar to that of a court but with a degree of informality that expedites the hearing process. The arbitrators are not required to follow the strict rules of evidence but must hear all of the evidence that will help make a determination of the controversy. Under the rules, the decision must be made within thirty days of the conclusion of the hearing and, except for extraordinary circumstances, is final.

Having completed the design of the project and obtained all of the necessary approvals, the individual hospitals introduced the new "Conditions of Admission form" about July 1, 1969. Four months later we held a meeting with representatives of all of the participating hospitals to assess progress under the project. During the three months reported on out of the twenty thousand admissions only some twenty individuals had rejected the option paragraph, including several who had done so by written notice during the thirty day period after discharge. No suits or requests for arbitration had been received. This was no surprise as claims or suits generally lag from six to twelve months after admission at the very earliest.

All of the hospitals expressed a desire to continue in the project and indicated widespread support from the members of their respective medical staffs.

From the viewpoint of the California Hospital Association and the California Medical Association this project is only one of a series of major programs designed to meet the problem of the increasing cost of professional liability insurance. The basic posture of these Associations is, and will continue to be, prevention and legislation which will restore reasonable protection to defendant doctors and hospitals from the unlimited extension of the doctrine of *res ipsa loquitor* and an ineffective statute of limitations.

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HOSPITAL ARBITRATION REGULATIONS

Section 1. *General Provisions*: These regulations shall be employed in conjunction with the Commercial Arbitration Rules of the American Arbitration Association and shall, in the event of conflict between these regulations and any such rule, be controlling in any arbitration initiated pursuant to "Arbitration Option" in the hospital's "Conditions of Admission" document.

CONDITIONS OF ADMISSION

Section 2. *Initiation under the "Conditions of Admission" document*: Unless barred by the Statute of Limitations, any legal claim or civil action by or against a hospital or its employees or a doctor of medicine may be settled by arbitartion if such procedure is authorized by the hospital's "Conditions of Admission" document. Any party bound by the "Conditions of Admission" document may exercise an option to compel arbitration at any time; provided, however, that all parties involved in a civil action must be afforded an opportunity to intervene

in such arbitration, and the court in which the action was filed shall retain active supervision over the action until the completion of discovery unless all parties bound to or agreeing to arbitration otherwise agree in writing.

(1) If a civil action has been filed, a party thereto wishing to compel arbitration shall file with the court and serve upon each party to the action, the following: (a) a petition to compel arbitration pursuant to Section 1281.2 of the Code of Civil Procedure, (b) a copy of the hospital's "Conditions of Admission" document and of the Commercial Arbitration Rules and of the Hospital Arbitration Regulations, (c) an affidavit and/or statements on information and belief that all essential parties have been served with process or have appeared generally in the action and (d) a time and date which shall be no less than ten days from date of service for hearing of the petition. Prior to the date set for hearing the petition, any party not bound by the "Conditions of Admission" form who has been served with the above may elect in writing to intervene in such arbitration. Failure to do so shall be deemed an election not to intervene. Any other person, including a corporation or other entity, whose participation is considered by the court to be material or relevant to a full and complete settlement of the dispute may be requested to join the arbitration. If, within ten days of such service, that person files with the court a written consent to arbitrate, he shall be able to participate fully in the arbitration with the same rights and privileges as any other party to the arbitration. He will be bound by the arbitration award as will be all other parties to the arbitration. The court may order arbitration after having assured each party to the arbitration a reasonable opportunity to complete discovery unless it is waived.

(2) If the arbitration is initiated other than through the procedure outlined in paragraph (1), any person, including a corporation or other entity, whose participation is relevant or material to a full and complete settlement of the dispute may be requested to join in the arbitration. Such a request must be made by a party to the arbitration and must be filed in writing with the AAA. Only one party to the arbitration needs to make such a request. All other parties to the arbitration are deemed to have consented to the joinder of any person when such joinder is requested by a party to the arbitration. The AAA will notify the other parties to the arbitration of the request. It will send a copy of all demands, answers or counter-claims presently on file, together with a copy of the rules and regulations governing the arbitration, the request to arbitrate and an agreement to arbitrate, to the person whose joinder has been requested. If, within ten days of the mailing by AAA, that person signs the agreement to arbitrate and returns it to the AAA, he shall be able to participate fully in the arbitration. He shall have the same rights and privileges as any other party to the arbitration. He will be bound by the arbitration award as will be all other parties to the arbitration. Any disputes concerning the joinder of parties, including relevancy and materiality, shall be settled by the Arbitrator.

All parties to an arbitration initiated through the procedure outlined in paragraph (2) shall have the right to use any discovery procedure which would have been available in a civil action pursuant to California Code of Civil Procedure, Sections 2016 through 2036. The Arbitrator may regulate such discovery.

SCOPE OF AWARD

Section 3. *Scope of Award*: The Arbitrator shall grant such damages as he deems just and equitable. In assessing such damages, the Arbitrator shall ascertain the degree to which each party to the arbitration was at fault for the total damages accruing to any other party to the arbitration as a result of the factual situation upon which the arbitration was based, taking into account all sources of such damages involving parties to the arbitration but excluding the damages attributable to persons not parties to the arbitration. His award shall be based on such responsibility. Each party to the arbitration shall become jointly and severally liable for the entire amount of the arbitration award; provided, however, that for purposes of contribution among the parties to the arbitration, the Arbitrator shall prepare a schedule of contributions according to his assessment of the relative fault of all parties to the arbitration which shall be binding as between them.

ADMINISTRATIVE FEES

Section 4. *Administrative Fees*: The administrative fee shall be $300 per case or according to the schedule of the American Arbitration Association in effect at the time of filing or at the time of refund. If there are more than two parties represented in the arbitration an additional $150 will be due for each additional party.

$150 of the administrative fee shall be advanced by the initiating party or parties at the time of filing with the AAA, subject to final apportionment by the Arbitrator in his award.

The remaining $150, per party, administrative fee shall be paid by the noninitiating party or parties prior to the appointment of the Arbitrator and subject to final apportionment by the Arbitrator's award.

NUMBER OF ARBITRATORS

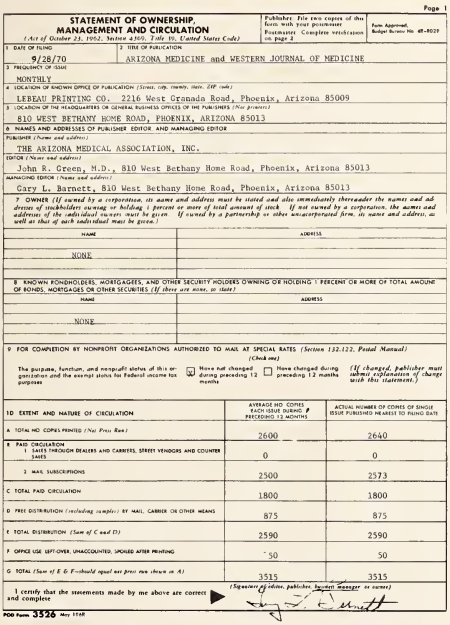
Section 5. *Number of Arbitrators*: Where the amount claimed by all parties to the arbitration totals less than $20,000, the dispute shall be heard and determined by one Arbitrator who shall be a lawyer. If the total amount so claimed exceeds $20,000, the dispute shall be heard and determined by a Panel of three Arbitrators, composed of one lawyer, one businessman, and one person from the field of health. All arbitrators shall be chosen from panels composed by the American Arbitration Association. When appropriate, references in these regulations to a single "Arbitrator" shall mean a Panel of three arbitrators.

ARBITRATION OPTION

6. *Arbitration Option*: Any legal claim or civel action in connection with this hospitalization, by or against hospital or its employees or any doctor of medicine agreeing in writing to be bound by this provision, shall be settled by arbitration at the option of any party bound by this document in accordance with the Commercial Arbitration Rules of the American Arbitration Association and with the Hospital Arbitration Regulations of the California Hospital Association (copies available at hospital admission office), unless the admitting physician has not agreed in writing to be bound by this provision, or unless patient or undersigned initials below or sends written notification to the contrary

to the hospital within thirty (30) days of the date of patient discharge.

If patient, or undersigned, does not agree to the "Arbitration Option", then he will initial here.



Page 1

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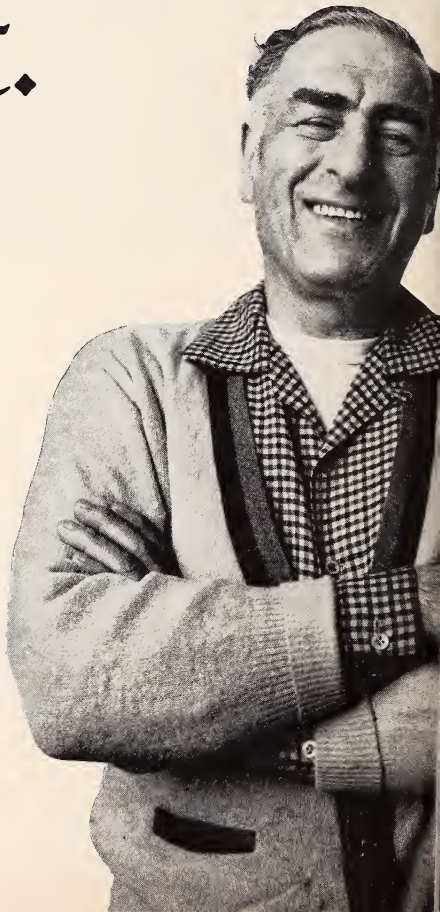
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Original Articles

RESUSCITATION OF THE NEWBORN



ARTHUR S. GOLDBERG, M.D.

Papago Buttes Pedatric Center
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Scottsdale, Arizona

An important article dealing with a frequent and extremely important problem. It is presented in a well organized manner and deserves review by any and all physicians dealing with newborn infants.

Throughout his formal medical education, the physician is trained to act skillfully and quickly to avoid catastrophic consequences of emergencies. However, if he goes into private practice, he may find that these emergencies seldom, if ever, occur. Skills in these areas may be lost. Thought processes may be diverted to more productive areas. Yet the physician can rarely by his actions, skills, and preparedness more profoundly affect the life and survival of a patient as in the resuscitation of the depressed neonate.

Most infants will breathe within a few seconds of delivery. The first breath is caused by a reflex initiated by the asphyxia which is present normally to some extent in all babies at birth.[1] For our purpose asphyxia may be defined as a decrease in blood oxygen level and an increase in carbon dioxide tension. This normally results from cord compression during the end stages of delivery and associated changes in uterine circulation. Prolonged asphyxia or excessive analgesia or anesthesia may, by their depressant action on the brain, render the respiratory center insensible to reflex stimulation.

Studies of blood gases at birth show that as long as the infant does not breathe the asphyxia quickly worsens.[2] Within minutes the low oxygen level approaches zero, the carbon dioxide tension rises to 115 mm of mercury or higher and the pH falls to 6.8 or lower (Figure 1). The rapidity with which these events occur emphasizes the need for an expedient, effective, well-organized and practiced routine for newborn resuscitation.

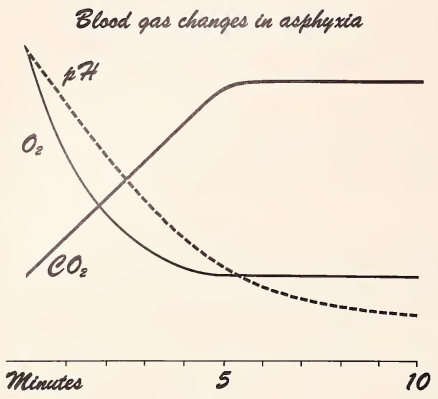


Figure 1
Changes in pH, Oxygen Level and Carbon Dioxide Tension During Asphyxia

Resuscitation should result in the same changes in the asphyxiated infant as do the vigorous cries of the normal baby — expansion of the lungs and speedy oxygenation of the blood. This may be accomplished with intermittent positive pressure inflation of the lungs. Small amounts of oxygen may be absorbed from the skin and mucous membranes but the quantities are insufficient for healthy survival. The only effective route for oxygenation is via the expanded lungs. Accomplished resuscitation also involves other considerations which will be discussed. They include suctioning, providing warmth, assessment of the infant, cardiovascular stimulation if indicated, and certain drug therapies.

The incidence of fetal distress prior to actual delivery as determined by the passage of meconium and fetal tachycardia or bradycardia may occur in as many as 30% of deliveries.[3] With the passage of meconium alone there is a reported fetal loss of 8%.[4] When irregular fetal heart tones are combined with the passage of meconium the fetal loss rises to an astounding 33.3%.[4] Certainly it would behoove the physician to be prepared to combat this trend by alertness to problems prior to delivery and by his skills in resuscitating the newborn who is in trouble.

Table I lists many of the prenatal conditions which are frequently associated with problem newborns. Prematurity is the major cause of perinatal mortality in the United States and occurs in 10% of all births. The perinatal loss associated with vaginal bleeding in the third trimester is related to fetal anoxia. The loss related to multiple gestations is double that associated with single gestation. The second twin is particularly vulnerable. The overall infant mortality associated with breech delivery is three and one-half times greater than that with vertex delivery.

Table 1
Maternal Conditions Associated with High Neonatal Risk

- Premature onset of labor and delivery
- Uterine bleeding in the third trimester
- Toxemia of pregnancy
- Multiple gestation
- Abnormal presentations (other than cephalic)
- Uterine dysfunction
- Placental insufficiency
- Iso-immunization (including blood incompatability)
- Medical problems in the mother
 - Diabetes mellitus
 - Heart disease
 - Renal disease
 - Tuberculosis
 - Acute viral communicable diseases
 - Use of various drugs
- Pelvic neoplasms
- Caesarean section
- Prolonged rupture of the membranes
- Polyhydramnios

When problems are anticipated prior to the delivery which might affect the newborn's well-being it would be most helpful to have a physician in the delivery room whose primary concern is the neonate rather than the mother, labor or the delivery. This physician should be able to devote his full attention to the aggressive treatment of the endangered infant, should this become necessary.

In 1953, Virginia Apgar published her scoring chart for the newborn (Figure 2).[5] The five signs should be assessed at one minute of age and again at five minutes of age. Ten is the best possible score, a score under three indicates a most profoundly depressed baby. A heart rate over 165 indicates some degree of asphyxia.

SIGN	0	1	2
HEART RATE	ABSENT	SLOW (BELOW 100)	OVER 100
RESPIRATORY EFFORT	ABSENT	SLOW IRREGULAR	GOOD CRYING
MUSCLE TONE	FLACCID	SOME FLEXION OF EXTREMTIES	ACTIVE MOTION
REFLEX IRRITABILITY	NO RESPONSE	CRY	VIGOROUS CRY
COLOR	BLUE, PALE	BODY PINK EXTREMITIES BLUE	COMPLETELY PINK

Figure 2
Apgar Scoring Chart[5]

However, bradycardia (heart rate under 100) indicates a more severe asphyxia and an urgent need for resuscitation. The heart rate is probably the most important single indication of the baby's immediate condition. If it were to increase during ventilation, the outlook would be favorable. Failure to do so after expansion of the lungs is a very poor prognostic sign. In regard to the respiratory rate, it is worth remembering that the absence of spontaneous respirations are of no importance if the infant is being ventilated effectively. Prolonged apnea is, of course, fatal.

A number of studies have been performed indicating the value of the Apgar scoring method.[6, 7, 8] Figure 3 shows the distribution of scores at one minute among a large number of infants.[6] It indicates that more than 80% of newborn infants score 6 or higher at one minute of life.

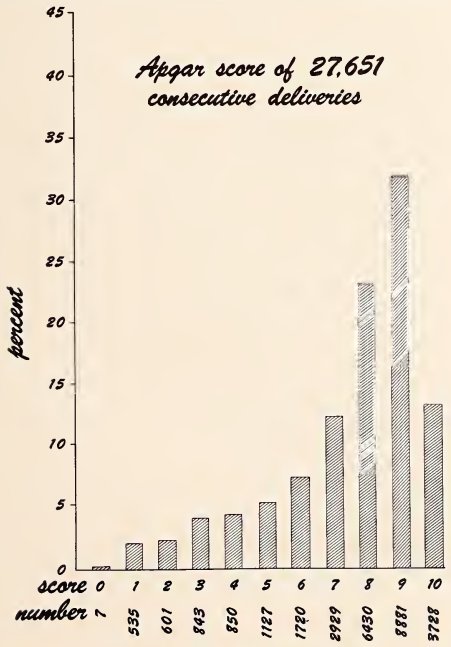


Figure 3
Percent Distribution of Apgar Scores at One Minute Among 27,651 Liveborn Infants[6]

A score below this is abnormal and requires careful medical attention. Another study[7] reports a mortality rate of almost 45% for neonates whose one minute Apgar score was zero. A collective study by the National Institutes of Health demonstrated a very high correlation between birthweight, one minute Apgar score and incidence of cerebral palsy by one year of age (Figure 4).[9] The low birthweight infant, who also had a low Apgar score at one minute, was shown to be particularly vulnerable. These studies suggest that a low one minute Apgar score is highly abnormal and is related to an impressive mortality and morbidity. This would justify a very vigorous approach by the physician in treating the problem newborn in order to avoid these unfavorable sequelae.

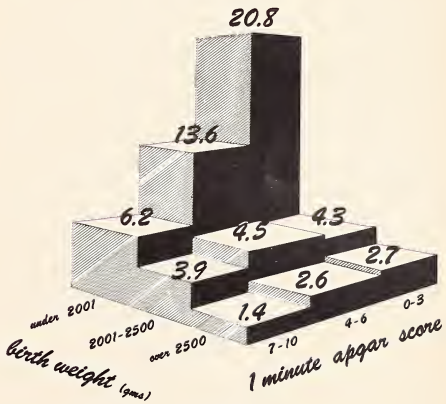


Figure 4
Correlation Between Apgar Score at One Minute, Birth Weight and Incidence of Neurologic Deficit (%) at Twelve Months of Age[9]

Drs. Marvin Cornblath and Virginia Apgar used the Apgar score to classify neonates clinically (Table 2).[10] Using this classification one can see two extremes: the 2 to 3 Apgar baby who is severely depressed, and the 8 to 10 Apgar baby who is normal. Most physicians agree on the treatment of these two classes of infants.

Table 2
Clinical Classification of Infants[10]

	Usual Score
1. Apneic infants	
A. Moderately depressed, good heart beat	4 to 7
B. Severely depressed	0 to 3
2. Infant breathing with poor air exchange, is cyanotic or pale, has gasping shallow or intermittent respirations	4 to 7
3. Normal infant	8 to 10

The 4 to 7 Apgar baby is more in a "gray" zone and there is some variance as to approach.

Note that depending on the 4 to 7 Apgar score, this infant may be either apneic or breathing with poor exchange.

Based on this classification, one may institute appropriate resuscitative measures. Certain points are worth remembering for all infants (Table 3). Every infant should have his oropharynx and then nose suctioned as soon as possible to aid in respiration and to avoid aspiration. It is important to suction the mouth first, as, if the nares are stimulated, the infant may reflexly gasp and aspirate. Additionally, until the cord is clamped it would be valuable to keep the infant at or below the level of the perineum to avoid a fetal to maternal transfusion. Of importance is the need to dry the vernix by quickly wiping the skin with a sterile towel to avoid cooling by evaporation. Keep the infant warm by placing him in a warm environment by using a radiant warmer such as the Merco or Air Shields Warmers, isolettes or by use of warm blankets. Neonates are particularly vulnerable to hypothermia which occurs rapidly and results in an accentuation of acidosis. Placing the baby in a 15 degree Trendelenberg position may also aid in avoiding aspiration and encouraging the loss of mucous from the respiratory tract. A one minute Apgar score should be performed on all babies and the abdominal contents of all caesarian section, premature and breech presentation infants should be aspirated. While still in the delivery room the neonate is attempting to adjust to extrauterine life and must be observed closely.

Table 3
Procedure for All Infants

1. Suction
2. Keep at perineal level
3. Keep warm
4. Apgar score
5. Aspirate abdominal contents if indicated

The treatment of the moderately depressed infant (Table 4) involves, after very brief suctioning of the upper airway, positive pressure ventilation with oxygen and with such devices as bag and mask or the intermittent device on the Kreiselman unit. While attempting this, the head must be extended with the chin supported upwards or the normal airway architecture which requires the air to curve in passage from the nose and mouth to the trachea may prevent efficient ventilation. If this infant does not improve within 30 seconds as judged by improved color and increase in heart beat, he should be laryngoscoped, intubated and ventilated with 100% oxygen. If the airway is occluded one may quickly attempt removal of such debris as meconium prior to ventilation. The infant with gasping respirations and poor air exchange who is cyanotic or pale may also be tried on bag and mask with 100% oxygen, but should be intubated if there is no rapid improvement, if lung expansion is unequal, if he begins retracting severely, or if there is inadequate air entry for any reason.

Table 4
Procedure for Moderately Depressed Infants

1. Brief suction
2. Oxygen with positive pressure device
3. If improvement is not rapid, laryngoscopy and intubation
4. Drug therapy

If there is an appropriate history of administration of narcotics to the mother prior to delivery of a depressed infant, one may consider the use of Nalline 0.2 mg I. V. into the umbilical vein.[11, 12] Note that Nalline is manufactured in both adult (5 mg per 1 cc) and pediatric (0.2 mg per 1 cc) strengths, and only the pediatric size should be used. However, these drugs, which can give a dramatic reversal of depressant action in the narcotized neonate, will further accentuate the depression if the baby is not narcotized and must be used judiciously. The use of sodium bicarbonate will be taken up further in the text and may be indicated in the treatment of the moderately depressed baby who does not respond to ventilation. Bicarbonate, Nalline and all other drugs are no substitution for ventilation. Adequate ventilation is the first and foremost consideration and should precede all other therapies.

The treatment of the severely depressed infant is relatively straightforward (Table 5). After very brief suctioning of the upper airway, the infant should be laryngoscoped, intubated and ventilated with 100% oxygen. After the heart rate is over 100 and the respirations are spontaneous with good color, one may consider extubation. If the heart beat is lost, external cardiac massage should be instituted. When the more immediate resuscitative procedures are completed, one may aspirate the abdominal contents. All infants should be repeatedly assessed as the resuscitation proceeds because of the emergence of other complicating factors, such as pneumothorax.

Table 5
Procedure for Severely Depressed Infants

1. Brief suction
2. Laryngoscopy, intubation and ventilation with 100% oxygen
3. Ventilation precedes all other therapy
4. Consider warmth and use of sodium bicarbonate

The vigorous normal infant with an Apgar score of 8 to 10 requires no treatment after initial brief suctioning of the upper airway and placement in a warm environment.

There are certain therapies which have been tried in the past and are now felt to be of no advantage to the neonate. In fact, these procedures are harmful in many instances. There seems to be little value to using such stimulants as caffeine, coramine, metrazole or picrotoxin. There is no chemical substitute for ventilation. Prolonged suctioning may cause reflex laryngospasm and should be avoided. Valuable minutes during which ventilation can be instituted may be lost. The infant's chest should not be covered in order to observe expansion. Any object placed on the chest will serve to increase the work which the infant must do in order to ventilate. Such procedures as jack-knifing, dilating the rectum, the use of hot and cold water or slapping the infant should be avoided. Again there are no substitutes for effective ventilation. Finally, and of utmost importance, the infant should never be handled roughly. "Flicking" the soles of the feet in order to stimulate the infant is permissible when the infant is not so depressed as to anticipate this being of no value.

Regarding the use of bicarbonate, much background work has been done. Earlier studies here show some degree of acidosis in the normal infant during labor judged by his blood gases, particularly the pH. Other studies have shown that experimentally asphyxiated animals quickly deplete their oxygen levels towards zero, retain large amounts of carbon dioxide and become progressively acidotic (Figure 1).[1, 2, 3] As the acidosis and asphyxia progress, a point is reached where brain damage ocurs. Dawes[14] has shown that this brain damage in newborn monkeys may be either reversible or reduced in severity by the administration of alkali and glucose. Also, a point may be reached during the asphyxia where the moribund course becomes difficult to change with ventilation alone. These reports suggest the value of alkali. To date this data primarily involves animal experimentation. Yet the use of bicarbonate in the delivery room is becoming more widespread because physicians have found that with the judicious use of sodium bicarbonate and glucose the response may be most dramatic. The place for bicarbonate is after effective ventilation is instituted and the infant has not responded satisfactorily. This would be at about five minutes of life. The bicarbonate may be diluted with 10% dextrose and may be satisfactorily given via umbilical catheter at a dose of 3 to 5 meq. per kilogram estimated weight of the infant. If umbilical catheterization is not available, this may be injected directly into any umbilical vessel. When properly used the response is gratifying. At no time should this therapy be substituted for ventilation and alkali should not be used at the expense of ventilatory efforts.

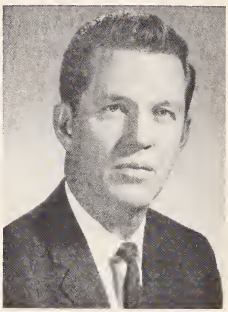
This paper is presented in an attempt to stimulate consideration of a rational and effective approach to resuscitation of the newborn. Yet no guideline can cover all contingencies and there is no substitute for clinical judgment, skill, and common sense. One might be in a position where although intubation is indicated, this procedure cannot be quickly done due to a lack of personnel or equipment. If this is the case, mask and bag ventilation should be substituted. It is hoped that by being prepared for emergencies in the delivery room, the physician will be able to put forth a rapid and effective procedure.

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A GENETIC AND KARYOTYPE STUDY OF COMPLETE OR INCOMPLETE PARAXIAL RADIAL HEMIMELIA IN ARIZONA — IMPLICATIONS FOR GENETIC COUNSELING*





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This material has been reviewed by the Office of the Surgeon General, Department of the Army, and there is no obection to its presentation and/or publication. This review does not imply any endorsement of the opinions advanced or any recommendations of such products as may be named.

Genetic syndromes have been well defined where complete or incomplete paraxial radial hemimelia is one of the anomalies.[1] Chromosome abnormalities have also been reported in infants with this congenital malformation. Faed et al[2] described different chromosomal aberrations in two infants with bilateral radial defects and proposed that in some cases unstable chromosomes are responsible for the defect. Even though clinical experience and a perusal of the medical literature lead to the conclusion that most cases are sporadic, pedigrees have been published showing monogenic inheritance of the anomaly.

Because of the low incidence of this congenital anomaly in the general population, it is difficult to obtain a series of cases large enough to investigate adequately the relative etiologic importance of genetic factors, chromosome abnormalities, and nongenetic factors.

Parents who have produced a child with complete or incomplete paraxial radial hemimelia, or the patients themselves, often seek genetic counseling. The literature does not supply information on what might be expected in the family history of a random patient with this disorder; neither does it indicate what proportion of the patients might have a chromosome abnormality. For these reasons genetic counseling is limited for this anomaly. In order to help alleviate the situation, a study was carried out in Arizona with the objective to gain some insight into the etiologic importance of genetics and chromosomal aberrations for this congenital malformation.

The forearm and hand may be divided into three developmental regions which are almost parallel to each other in location:[3] radial component consisting of radius, thumb and intermediate carpal bones; medial component consisting of the central carpal bones and index finger; ulnar component consisting of the ulna, three ulna digits and associated carpal bones. Complete or incomplete paraxial radial hemimelia results from an upset in the development of the elements of the first component. An individual may lack a radius, carpal bones and thumb, or manifest a milder expression of the defect, such as radial deviation of hand and hypoplastic thumb and/or radius. A missing radius is a prominent feature of this developmental anomaly, and individuals appearing as case reports in the medical literature and as propositi in genetic studies often have this aspect of the syndrome. The anomaly is commonly referred to in the literature as congenital absence of the radius.[4, 5, 6, 7, 8] Patients with complete or partial absence of the radius may manifest one or all of the following traits: radial deviation of the hand, shortening of the forearm, ulna bowing, incomplete number or fusion of carpal bones, absent or hypoplastic thumb, and abnormal or absent forearm and arm musculature.[5] Several additional disorders have been reported in individuals with complete or incomplete paraxial radial hemimelia. These include Fanconi's hypoplastic anemia sometimes associated with thrombocytopenia,[9] myositis ossificans,[3] aplasia and collapse of the lung on the affected side,[8] clubfoot,[6] cleft palate,[7] atrial septal and other associated cardiac defects (Holt-Oram syndrome,[10] upper limb-cardio-vascular syndrome)[10] and ventricular septal defects.[5] Heikel[6] found that total absence of the radius occurs more frequently in the right arm than the left arm, and is more frequently bilateral than unilateral. He also noted that partial absence of the radius is less frequent than total absence. In 1924, Kato[6] observed an approximate 2 to 1 sex ratio favoring males among a total of 233 cases of absence of the radius, including 230 from the literature and 3 of his own.

The incidence of complete or incomplete paraxial radial hemimelia is unknown. However, Birth-Jensen[12] estimated that the prevalence of congenital absence of the radius is about 1 in 55,000 in the adult population of Denmark. Because of the high mortality in these cases the first two decades of life, he estimated that the incidence at birth is near 1 in 30,000.

Genetic Study

Patients with complete or incomplete paraxial radial hemimelia were obtained from Arizona Crippled Children's Services and medical records made available in Phoenix and Tucson, Arizona. Because of the rarity of the disorder only 18 patients could be ascertained independently. Relatives of each patient were interviewed and information was obtained on the presence or absence of congenital malformations in family members. Inquiries were also made concerning any nongenetic factor which could have been of etiological importance, such as parental age, infection, radiation exposure, mechanical trauma, endocrine upset, and medication during early pregnancy. Nothing of significance was noted for any of these nongenetic factors, perhaps because of the small number of cases and inadequacy of retrospective studies of this type.

Two (11%) of the 18 patients had a positive family history of this disorder. One male patient had an affected male sib. Some manifestation of the anomaly occurred in 4 relatives of the other patient. Descriptions of the 18 patients and their 5 affected relatives are given in Table 1.

The affected male sibs are shown in Figure 1. The father (II-4) of the sibs (III-13 and III-14) is known to have a short forearm and bleeding tendencies. No x-rays are available for the father to determine if he manifests an expression of the

TABLE 1

Anomalies in the 18 Patients and Their Relatives with Complete or Incomplete Paraxial Radial Hemimelia

Patient	Sex	Bil.	Right	Left	Radius Absent	Radius Hypoplastic	Thumb Absent	Thumb Hypoplastic	Ulna Bowed	Associated Defects
1	F	X			X			X		1, 2
2	M			X	X			X R	X	1
3	M			X	X		X			3
4	F			X			X			
5	M		X		X			X	X	4
6	M	X			X		X			5
7	M		X			X		X		6, 7
8	F		X		X		X		X	8
9	F		X		X			X		
10	M	X				XR	XL	XR		
11	M	X			X		X		X	1
12	F			X		X	X		X	
13	F		X		X		X			9
14	F			X			X			
15	M	X				X	XL	XR		1
16	M				XL	XR	X			
17 (III-13)	M	X			X			X	X	
(III-14)	M	X			X			X	X	10
18 (IV-1)	F	X			X			X		2
(IV-3)	M	X			X			X		2
(IV-4)	F	*								1 (cause of demise)
(III-8)	M	X				X			X	
(III-9)	M	X			X					

ASSOCIATED DEFECTS:

1. Heart lesion, murmur, etc.
2. Thrombocytopenia with bleeding tendency
3. Undescended testicle
4. Tight tongue frenulum at birth
5. Imperforate anus
6. Patent ductus
7. Torticollis
8. External ear anomaly
9. Cleft palate
10. Clubfoot

* Precise anatomy not known except child had a "twisted" left forearm resembling that found in her cousins (IV-1 and IV-3).

anomaly. He has moved out of Arizona and is not available for further study. The parents (II-4 and II-5) of the affected male sibs do not have a common ancestor. A dominant gene showing variable expressivity may be present in the father and his two sons, although recessive or polygenic inheritance cannot be ruled out.

A pedigree of the family with multiple cases is presented in Figure 2. Five members (II-8, II-9, IV-1, IV-3, and IV-4) of the family show a manifestation of complete or incomplete paraxial radial hemimelia. IV-1 and IV-3 have thrombocytopenia. Recessive inheritance has been reported for the syndrome consisting of radius-platlet hypoplasia.[1] An autosomal recessive gene may account for the distribution of affected members of this family. However, curiously, no two of the six parents of the affected members have a known ancestor in common. The absence of consanguinity suggests that a dominant gene showing reduced penetrance and variable expressivity should be considered as being responsible for the affected individuals in different sibships and generations of this family. A condition of radius hypoplasia and thrombocytopenia may show genetic heterogeneity. Dominant, recessive, and polygenic types may occur. Furthermore, if a dominant gene only expresses itself in the presence of the proper genetic background, recessive inheritance would be mimicked in some cases.

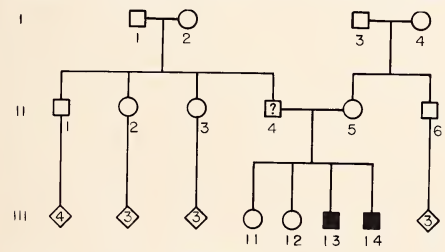


Figure 1
Pedigree of complete or incomplete paraxial radial hemimelia. The father of the affected male sibs may have a mild expression of the disorder.

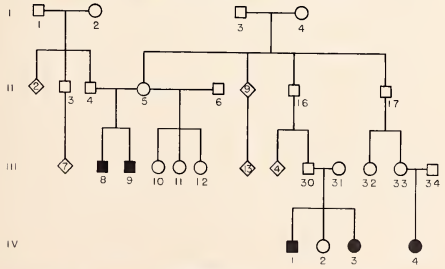


Figure 2
Pedigree of complete or incomplete paraxial radial hemimelia.

Pedigrees have been published with hypoplasia of the radius and other defects occurring in members of more than two generations, showing conclusive evidence for autosomal dominant inheritance.[10, 13] During the course of the study of Arizona patients, the senior author encountered a unique family showing dominant inheritance. The pedigree of this non-Arizona family is presented in Figure 3. Three members (IV-4, V-1 and V-3) were examined by the senior author. The family history was supplied by IV-4, who seemed well informed on the nature of the disorders occurring in the various family members. I-1 was known to have forearm and hand deformities. II-1 and II-2 also exhibited these deformities. II-3 is short in stature, has a short neck and short forearms. II-2 has a right arm defect and a short neck. IV-4 shows absent radii, hypoplastic right thumb and an absent left thumb. IV-3 exhibits congenitally dislocated radi-

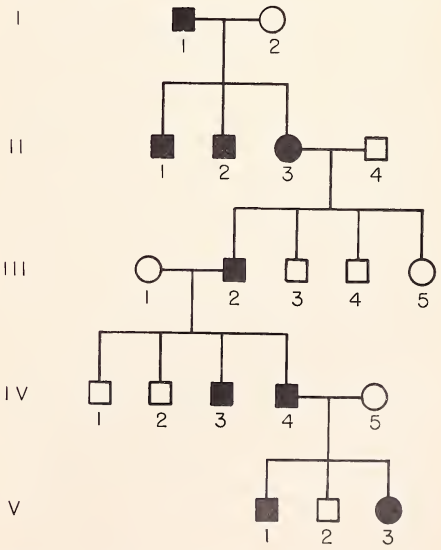


Figure 3
Pedigree of radial hypoplasia. The prevalence and distribution of cases are compatible with a mode of inheritance due to a dominant autosomal gene showing complete penetrance.

al heads with limited range of elbow motion, short forearms and hypoplastic thumbs. V-1 has absent thumbs and hypoplastic radii. V-3 has hypoplastic thumbs and hypoplastic radii. Unfortunately, x-rays and other clinical data are not available for members of this family. IV-4 reports that all affected members apparently had or have a heart murmur, and all show a strong family resemblance consisting of short stature, short forearms, short necks, wide set eyes and relative broad facies. The mutant gene segregating in this family causes some anomalies similar to those of the upper limb-cardiovascular syndrome.[10]

Karyotype Study

Chromosome studies were completed for the 18 patients and 2 of their affected relatives. They were done in the clinical laboratory of the Crippled Children's Hospital, Phoenix, Arizona. No chromosomal abnormalities could be detected in any of the 20 patients.

Discussion

It seems apparent from the results of this study and a survey of the literature that complete or incomplete paraxial radial hemimelia is etiologically heterogeneous. In some cases, the presence of a chromosomal aberration or dominant mutant gene may cause the developmental error, while in others the phenotype may result from a recessive gene, a set of polygenes, or occur as a phenocopy. The action of the major etiological agent and/or the presence of genetic modifiers could determine whether the manifestation is severe or slight.

A missing radius has been described as one of the malformations in an individual with trisomy-18 syndrome.[16] In this case and those described by Faed et al,[2] where different types of unstable chromosomes were present in two patients, a general upset in the quantity or arrangement of specific genetic material, interacting with genetic background, seems to have led to the deformity. Even though the sample size was small, the results of the present study do suggest strongly that a chromosomal aberration is not a common cause of the disorder. An upset in the amount of genetic material will also occur if fertilization involves a gamete containing a duplication or deficiency or an aneuploid gamete produced by a translocation heterozygote. Small chromosomal aberrations cannot be detected in man with present techniques and special care has to be taken to verify unstable chromosomes. Even though the 20 karyotypes obtained in the present study were all normal, a small aberration could be present in one or more individuals and would be of prime suspect in those individuals with gross multiple malformations.

Couples who have produced a child with a radial defect are often concerned about the risk of producing another child with the same disorder; a person with the defect may be concerned that he will transmit the defect to a child. The pedigree presented in Figure 3 illustrates the action of an autosomal dominant gene showing, apparently, complete penetrance. Genetic theory states that the probability is 0.50 that an affected member of this family, who is married to a normal person, will produce a child with the disorder. Pedigrees showing this type of inheritance for this congenital disorder are rare, as noted by their scarcity in the literature. A similar type of inheritance may be present for the family shown in Figure 1. It is highly suspicious that the father (II-4) of the affected male sibs is a mutant individual. This hypothesis can be tested by following the descendants of the affected male sibs.

A structural gene possesses many mutable sites, therefore mutant genes arising independently may have different primary structures. Polypeptide chains produced by different mutant genes may differ in structure and function. For this reason a mutant gene segregating in one family may show reduced penetrance. The genetics literature is replete with examples of anomalies caused by dominant genes showing reduced penetrance.[14] Any statement to a member of these families regarding the risk of transmission should be shrouded with uncertainty. Judicious genetic counseling requires information on the degree of penetrance for the family in question. Unfortunately, such information is usually not available. The biological reason for reduced penetrance is of course obscure. Studies of this phenomenon in experimental animals have revealed that influential factors are genetic background, maternal effects, and environmental conditions during critical developmental periods. Furthermore, little is known about the cause and effect of unstable chromosomes in man. The importance of reduced penetrance for congenital absence of the radius is illustrated perhaps, by a case of monozygotic twins,[15] where one member was normal and the other

manifested unilateral absence of the radius and thumb and possessed an interventricular septal defect.

Factors causing reduced penetrance are perhaps similar to those responsible for variable expressivity. For example, in the presence of the etiological mechanism, such as a dominant mutant gene, genetic background of a heterotic nature may buffer development towards normality so that only a microform is present. Indeed, the biological phenomena of reduced penetrance and variable expressivity are no more remarkable than unilateral expression in the same individual.

Genetic counseling is especially difficult for sporadic cases (i.e., no family history). Are they mutant individuals, do they possess a malformation resulting from some complex interaction involving genetic and nongenetic factors, is a chromosomal aberration present, or are exogenous factors responsible for the defect?? The pedigree shown in Figure 3 may be used as evidence that some sporadic cases are mutant individuals; the ancestral individual (I-1) in this pedigree was a sporadic case before he had offspring. The results of the present study show that most patients with the missing radius syndrome lack a family history of this disorder. A positive family history was noted for only 11% (2 out of 18) of the patients ascertained independently. No information is available on how frequently sporadic cases have produced a child with the disorder. Because of the low incidence it is difficult to obtain a large number of patients for family history studies. Empiric risk data of this type would be of value.

Sporadic cases of the missing radius anomaly are not clinically different from those with a strong family history (see Table 1). Consequently, there is no way of distinguishing cases resulting from a dominant gene, some other type of genetic mechanism, or the action of exogenous factors.

Summary

Complete or incomplete paraxial radial hemimelia is an upset in the development of the radial component of the forearm and hand. In general, the etiology is unknown; however information found in the literature indicates that in some cases genetic factors and chromosome aberrations are involved.

Only 2 (11%) of 18 Arizona patients with a radial defect had a family history of the disorder. Two male sibs were affected in one family. Their father may have had a slight manifestation of the anomaly. Five members of the other family had a radial defect.

The karyotypes of 20 patients with this disorder were normal. These results suggest that a chromosomal aberration is a minor cause of complete or incomplete paraxial radial hemimelia. Although a dominant gene may be responsible for the defect in some cases, the majority probably result from more complex genetic mechanisms or exogenous factors. Genetic counseling is complicated by the presence of etiologic heterogeneity.

Acknowledgements

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"MALPRACTICE" PROBLEMS

This issue of ARIZONA MEDICINE contains some very relevant information about problems related to "malpractice", a subject that Dr. Fred Landeen, President of the Arizona Medical Association, has intensively investigated since taking office six months ago. Readers are invited to comment on the letter from the Association to Senator Cardella.

The term "malpractice" denotes improper medical or surgical treatment. It is a word of hybrid origin from "malus" (Latin for evil) and the English term practice. The concept of responsibility for results of medical practice probably dates to Hammurabi (1792-1750 B.C.) who was the sixth king of the first dynasty of Babylon. The *Code of Hammurabi* regarded the physician as a professional, described something of the frequency of surgical procedures and the penalties for morbidity and mortality. The Code stated that if a slave patient died as a result of treatment by a physician, the physician had to replace the slave. If the slave patient lost an eye, the physician had to pay half the value of the slave to his owner. The surgeon's hands were cut off entirely in the event that a free patient lost his life as the result of an operation. Almost 4,000 years have elapsed since this code was in effect. Medical, legal, social and religious values and practices have advanced remarkably and still the ideal system to protect both the patient and physician from unwarranted damages has yet to be completed. Certainly the doctrine of *res ipsa loquitar* (the thing speaks for itself) is difficult to justify in the majority of malpractice claims. Yet, on occasion, it is a valid basis for redress. In actual practice this doctrine frequently resembles the archaic Code of Hammurabi.

In America, any citizen can have an attorney file a complaint against anyone else, including a physician. In most instances the complaint against the doctor does not lead to a verdict of malpractice but it sets into motion (1) defamation and slander of the reputation of the physician by document and sometimes via the news media, (2) much unnecessary anxiety on the part of the physician, his family, hospital and close colleagues leading, not infrequently, to health problems (ulcers, heart attacks and even death) even if he is blameless, (3) decreased accessibility to the needs of his patients and of his family, and (4) increased costs both from the standpoints of (a) medical liability insurance rates for himself as well as for other physicians in his region, and (b) transferral of these costs to the public. At the present time a physician apparently cannot sue for redress even in a patently unjustified action against him. Obviously some other equally strong deterrent for unjustified claims is needed. The Pima Plan is a step in the right direction and has recently been adopted by the Maricopa County Medical and Bar Association. Because these costs and those of excessive awards contribute directly to the problems of economic inflation and the high costs of medical care, the "malpractice" problems belong to all citizens, including physicians, and demand and deserve urgent legislative investigation and action.

John R. Green, M.D.

Editor's Page

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President's Page



"REFLECTIONS ON WIVES"

At the half-way point in one's term of office, one must reflect somewhat, and within this reflection you concern yourself with trends, attitudes, accomplishments — things that are possible, others that are impossible, or at least improbable, and regard most things with pleasure—a few with displeasure, or at least disappointment. Some are encouraging, others discouraging, but admidst all of these reflections comes the realization that you still exist somewhat because of your wife. As I think of her at these moments, instead of taking her for granted as I normally do, I realize how much the ability of my acceptance and continuance of this position is hers, so I will, with your indulgence, reflect on wives. I would hasten to add, however, that I have had only one, but I would now have you meet her. To me she is a beautiful woman—she creates beautiful things in her ceramics media. She is always well-groomed, beautifully dressed and in addition to all these things, she has been many others things as well. She has been a short order cook, chef, a gourmet cook, chauffeur, seamstress, bookkeeper, banker, painter, nurseryman, teacher, tile layer, gardner and many other things. At all of the above-mentioned things she is an expert, but with the following she needs a little improvement — that is, she is not an expert plumber, electrician or carpenter, but I figure that over the next twenty five years she will overcome these shortcomings and improve to the usual journeyman's expertise. She is all these things plus any superlatives you can add. She enables me, as I'm sure your wife has enabled you, to take part in many activities that are of no value, prestige or pleasure to her. She has sacrificed nights out, weekends off, holidays and vacations so I can participate in the deliberations of the Arizona Medical Association. She has sat home evenings, alone in hotel rooms, gone shopping without me because of a last minute caucus, and in general has had a lousy time at many times in many places. But we've had superb times on many occasions. We have met wonderful new people and been to many new places, both within and without of the state.

So you can see within the scope of these reflections the realization that this has all been made possible and enjoyable because of our wives. At least, it has been for me, and I would like at this time to tell you all that she is all and more than I could expect, and I hope your wife is as wonderful as mine.

Fred H. Landeen, M.D.
President

BIOCHEMISTRY – A NEW LOOK

The first three classes admitted to the University of Arizona College of Medicine encountered a classical approach to the study of biochemistry. A preponderance of formal lectures, research technique-oriented laboratories, relatively few discussion sessions and frequent examinations produced a situation in which the faculty "taught" a great deal of biochemistry and the students crammed only enough to pass the examinations. In addition, the course was assailed by the incessant demand for "relevance," which resounds throughout our current educational system.

In order to reduce the teaching/learning ratio and to interject enough clinical material to make biochemistry meaningful to the student, we substantially altered the structure and content of our course. In our judgment the average student learns very little from formal lectures. As he frantically tries to record every word, he loses his hold on the scientific concepts being presented. He hears the words, but does not listen to the music.

This year, the student is receiving a complete set of lecture and discussion notes, prepared by the faculty members who will deliver the lectures or lead the discussions. These notes are a distillation of the important aspects of biochemistry and are cross-referenced with the two textbooks recommended for the course. The student is responsible for reading the notes and textbook material prior to each lecture or discussion session. The number of formal, didactic lectures was reduced by 60 per cent and are limited to serving three purposes: a) to introduce general areas of biochemistry which the student will pursue on his own or in discussion sessions; b) to describe rather complex topics which are inadequately treated in current textbooks or which are directly related to particular departmental faculty competence; and c) to integrate and summarize these areas of biochemistry which the student has already considered.

Approximately 50 per cent of the course time is devoted to discussion sessions in which the student may ask questions or otherwise ensure his comprehension of the topic under consideration. Participation in the discussion is voluntary and depends solely on the student's understanding of the topic.

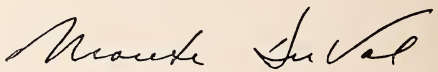
Dean's Page

Examinations also constitute a valuable learning experience, accentuating important areas and requiring the student to integrate his information to solve problems. Weekly quizzes also permit the identification of students who may need special tutorial assistance. At the student's request, the faculty and teaching assistants will attempt to identify the deficiency and provide help to remedy it. We want to give the students every opportunity to learn biochemistry during the allotted curriculum time.

The laboratory portion of the course also departs from the traditional format. Instead of learning how to acquire laboratory data, the student spends most of his time learning how to handle and interpret such data. Actual, "wet" laboratory time has been reduced to a relatively small number of hours to permit more discussion and analysis of the day's results. In most cases, a member of the clinical faculty is also on hand to present clinical aspects of the subject under discussion.

About half of the 16 laboratory periods consist of clinical colloquia designed to reinforce the basic biochemistry presented elsewhere. The colloquia include lectures, presentation of case histories and discussions by members of the clinical faculty. The students are asked to read extensively prior to the discussion and to serve as "consultants" in evaluating the clinical data and the treatment of the case being presented. Such sessions lend clinical relevance to abstract subjects and reinforce the principles of biochemistry. The colloquia also encourage the student to initiate the process of self-education, using the current medical journals.

We think that our approach to teaching biochemistry will insure that our students are prepared to master both the technical and the scientific aspects of clinical medicine. We have been encouraged to find that our approach is palatable, interesting and relevant to students and faculty alike.



Editorial



WILLIAM B. McGRATH, M.D.

THE NEW MORALITY

The Navajo are a pastoral folk, migrating with the planets and the seasons and the grasses. Their gods are gentle and somnolent — unless provoked, and then they strike with the terrifying lash of lightning and thunder. The Hopi live in villages. The crowding of pueblo life calls for many laws, many regulations. Their gods have to be more like house detectives.

Our own ancestors came from Northern Africa and Southwest Asia. We are still nomadic, like the Navajo, when our laws were set forth in the Torah and the Testaments. But now we live in cities.

The basic moral laws, the decalogue, will not be erased. What changes with time is not a given law but its relative importance, its rank in a series of values.

The importance of a moral law is entirely determined by the consequences of its transgression. When the consequences of wrongdoing are not prompt and painful, then there is hardly any sense of wrong-doing. Neurotic guilt, morbid self-reproach, can lead to crime, it is true; "the criminal out of the need of punishment." But ordinary guilt is probably nothing

other than the fear of consequences. When one says, "I feel guilty," means, "I am afraid of punishment." Such fear is a real deterrent.

Example: In the enforcement of most laws, the individual and the circumstances are taken into consideration. One gets probation for a first offense or pleads guilty to a lesser charge or goes the route of available appeals. By contrast, the policy of one agency, the Game and Fish Commission, is rigid and impersonal. Whoever you are or whatever your excuse, if you are caught with illegal game you will surely pay a sizable fine. Sportsmen respect this authority and are careful to follow the rules.

We react with dismay because the younger generation devaluates virginity. They do not understand why we have considered it a pearl of such great price. They cannot realize how horrible the consequences of fornication or adultery used to be. Before democracy a child born out of wedlock or of an illicit union was doomed to a lifetime of shame. A bastard (nullius filius) had no heritable rights, and he could never aspire to position or title or even full citizenship. A girl or woman who sought her own gratification at such a risk to a child branded herself an imbecile or a degenerate; and she, too, would be ostracized. A boy or man who had carnal knowledge of such a reckless woman had no other use for her. In earlier years contraceptive or prophylactic techniques were not known, and induced abortion was almost always fatal. Nor were there antibiotics to ward off the spread and devastation of venereal disease. Man or woman, only a fool would take such chances.

Modern medicine has undermined morality simply by lessening the consequences of immorality. A few decades ago there was little help or hope for the alcoholic or the drug addict. Society washed its hands; contracted no obligation to deliver the individual from the results of his own folly. Now these people—even criminals — are considered ill. There are medicines and hospitals and agencies to ease their suffering and to prevent dangerous complications. The "rescue principle" of our time portrays them as victims of circumstances or even sometimes as heroes. We have made it possible for the adulterer or the alcoholic or the addict to "afford" those vices which would have been catastrophic in the recent past.

In Caucasian countries and on the frontiers there were practical reasons to encourage childbearing. Tillers of the soil and foot soldiers would be needed. Homosexuality was then a threat to the survival of the race, and so it was condemned. Now we are more concerned about the increase in population; and we are disposed to condone homosexuality or even to find some merit in it!

The mills grind slowly. There is another area in which the old morality comes into conflict with social progress. We are just beginning to recognize that we have to pay a very heavy price for our beloved democracy.

Monarchs derived their authority from God (the divine right of kings) and mostly through the Church. Supreme power was handed down arbitrarily or by way of heredity. Subservience then was a virtue. In our own lifetime the profession of teaching was strongly influenced by men and women who had taken vows of poverty and obedience. How archaic are such goals for the student or layman in a capitalist society!

Walter Lippman wrote: "To replace the conception of man as the subject of a heavenly king, humanism takes as its dominant pattern the progress of the individual from helpless infancy to self-governing maturity." Democracy, whether we like the thought or not, is essentially humanistic. In assigning supreme power to the people we turned our backs on any authority except ourselves. We separated Church and State. We say, "under God," but we got rid of His deputies on earth.

We have eaten our cake. Inherent in the concept of democracy is the repudiation of any kind of despotism or tyranny. Inherent in democracy is disrespect for authority. The side-effect is inevitable: the young people mark down the value of the Fourth Commandment and openly rebel against their parents and against all surrogates of their parents.

It is not constructive just to be frightened and angry at the new morality or, oversimplifying, to blame it on permissiveness. The permissiveness is not that of Dr. Spock or that of misguided or ineffectual parents. The real permissiveness derives from the fact that the consequences of immoral behavior have changed so much. The younger generation, knowing this, could better understand our system of values and we could begin to understand theirs.

In Memoriam

And, as the cock crew, those who stood before
The tavern shouted – 'Open the door!
You know, how little time, we have to stay
And, once departed, may return, no more"
Rubaiyat of Omar Khayyam

John Fergus McKenna, M.D.
Physician, Combat Pilot and Friend Par Excellence
1905-1970

To few of us, "with so little time," comes, as this redoubtable Scot, such a productive and varied life of service.

Born in the town of Ayr in southwest Scotland to a physician, Fergus McKenna and his wife, Anne Brown Bone McKenna, he was educated at Ayr Academy, Glasgow High School and Strathellan School, Perthshire. Then on to London as a 'clark' to an East Indian merchant. Two years at columns of figures and lack of prospect for advancement made Australia an enticing adventure. At Christmas time he was on to Scotland to lay his plans before his father. Asked what his father's response was to his Australia decision, he laconically rejoined that his father said nothing! This era may have been 'the beginning of the end' of the British Empire — but it was still glowing and laden with adventure.

So in 1924 by way of the Suez Canal—across the simmering Indian Ocean down-under to Australia. At once he entered the Hawkesbury College, Richmond, New South Wales, and studied agriculture. In 1926 went into the "bush" near Wellington, N.S.W., where—with two college friends, he raised sheep and wheat. John often recalled his Hawkesbury Valley days—and a more beautiful area is seldon seen. It lies twenty miles north of Sidney. A hundred years ago Anthony Trollope (1873) wrotee "On the Rhine, on the Mississippi and on the Hawkesbury alike there is created an idea that if the traveller would only leave the boat and wander inland he would be repaid by the revelation of marvelous beauties of nature—beauties which have never perhaps yet met the eyes of man." The bold bluffs crested with 'eucalypts' and the verdant valley floor somehow still hold the spirit of the long departed aborigine.

In the "outback" he came to know the laugh of the kookaburra, the leap of the kangaroo and wallaby and the gurgle of the magpie.

Restless, as ever, he won a Cadetship (1927)—one in ten of 5,000 applicants, to the Australian Air Force. Soon after gaining wings in the R. A. A. F. he was 'seconded' to the R. A. F. in England. Here he was first posted with the (night) Bomber Squadron and soon as an instructor. In 1931 he was one of the first four to qualify in instrument flying in the R. A. F. On the move again (1932) he went on Reserve status, flying three weeks a year.

Turned now to medical school, graduated 1938 from the Royal College of Physicians and Surgeons, Edinburgh, Scotland. Served as residency as Casualty Surgeon and General Medicine 1938-39, Western Infirmary, Glasgow.

Paid a sentimental journey to Australia; on landing back in London, August 1939, received orders to report for flying duties. He flew Air Defense missions and served as Chief Flying Instructor.

Decorated with the Air Force Cross at Buckingham Palace by King George VI, May 1941. In my long friendship with Mac I can recall only once that he mentioned this cherished decoration.

In April 1942, transferred and posted to Command R. A. F. Station, Falcon Field, Mesa, Arizona, training R. A. F. and U. S. A. flying cadets. Thus began his lasting attachment to Valle del Sol. Back to United Kingdom in 1944 and demobilized 1945.

In order to get back into medicine he did a post graduate turn at Western Infirmary; departed England for Phoenix, 1946. For many years officed in the Professional Building in association with Drs. Gatterdam, Hamer.

John is surveved by a physician brother and a sister—who reside in Scotland, and his beloved wife Euphemia of Phoenix.

John McKenna represented the epitomy of professional ethical conduct with his patients and fellow practitioners. His dogged determination for "fair play" and intellectual honesty hath no peers.

He bore his terminal illness with such taciturnity that few of his friends guessed that it was mortal.

"And, once departed, may return no more."

John Kennedy, M.D.

Topics Of Current Medical Interest

The following is the official statement of ArMA on malpractice as requested by Senator Kenneth Cardella for the use of his Interim Committee on Medical Malpractice.
YOUR CRITICAL COMMENTS ON ITS CONTENT ARE SOLICITED.

Dear Senator Cardella:

In your letter of August 31, 1970, you asked for an official statement of the Arizona Medical Association, Inc. with respect to the matter being considered before the Legislative Council Interim Committee on Medical Malpractice Insurance.

The statement incorporated in this letter was unanimously adopted by the Board of Directors of this Association at its meeting held Sunday, October 4, 1970. It thus is the official statement of the Association.

Because of its importance, we are following the suggestion mutually agreed upon in our luncheon with you Friday, October 2, 1970, to print this statement in full in the forthcoming November issue of *Arizona Medicine* which will be distributed to all 1,697 active members of the Association on or about November 15th. And, that printing will solicit letters from any doctors who disagree with any part or all of that statement, thus giving the Association knowledge of whether the unanimity of the Board of Directors is an accurate reflection of the position of the member physicians. We will not only send you a copy of the issue of *Arizona Medicine,* but also apprise you of any letters of disagreement we might receive as the result of this printing.

Therefore, it is fair to say that this letter reflects the present views of those members of the Association who have been actively concerning themselves with this problem.

GOAL:

The Association's goal is to provide better medical care for Arizona citizens. This means that high quality medical care must be available at prices people can afford to all Arizona citizens whether they are taken ill or are involved in an accident in a rural or remote area or in a metropolitan center.

PRINCIPAL PROBLEMS:

The direct result of the malpractice insurance crisis is that the availability of health care is reduced and the cost is increased.

Malpractice coverage is becoming more difficult to secure both for new physicians and for physicians in certain high-risk specialties. When it can be secured, the premium cost is high and the insurance industry advises that it is likely soon to become substantially higher.

There is evidence both in Arizona and nationally that because of these factors, new doctors are being discouraged from entering private practice, particularly as solo practitioners in small communities and deprived areas where they are most needed, and that senior physicians are retiring earlier than normal when they are still fully capable of providing much needed service.

Another effect is to encourage "over-medicine" and "over-hospitalization" in an effort by the physician to avoid the possibility of a malpractice action. This, along with the soaring costs of malpractice insurance, increases the cost of patient care and reduces the availability of physicians and health care facilities at a time when every effort should be made to lower costs and expand provisions for care.

THE CAUSE OF THE HIGH COST OF INSURANCE:

We are advised that the principle factor causing the high cost, and sometimes unavailability, of medical malpractice insurance is the legal and investigational expense related to the adversary proceeding used to settle malpractice claims. One insurance company has reported that of the total funds it pays out in its malpractice business, 15 per cent goes to plaintiff's attorneys, 55 per cent is taken by defense attorney fees and defense and investigational costs, and only 30 per cent actually goes to patients.

High jury verdicts and malpractice cases, which are becoming a pattern both countrywide and in Arizona, consistent with a similar pattern in automobile accident cases, also increase the costs. But, perhaps of greater significance, is the publicity frequently given these verdicts which stimulates the filing of claims, many of which do not prove to be legitimate, but which nevertheless add to the insurance companies' legal defense costs.

Another principle cause is the open-end

statute of limitations which puts the insurance companies in a position of not knowing when an insured risk is terminated. Again, slow, cumbersome and expensive court procedures require the insurance companies to set reserves for today's malpractice incidents against what will be the even more highly inflated dollar of several years from today when the claims, if valid, must be paid.

Finally, and not to be avoided or brushed under the rug, is the continuing problem of elevating the general level of medical care and more particularly, the rigorous weeding out the "bad actors" from the profession.

REMEDIES:

In the last analysis, the remedy for high insurance costs will probably have to be akin to the solution found for industrial accidents through the Industrial Compensation Act. This will mean that a top limitation will be set for various events of patient injury and will embody the concept of compensation without fault, all to be handled by an agency designed to operate more efficiently, more quickly and less expensively than the courts. Realistically, however, this solution may be some years away. Hence, the Association has given careful thought to a variety of interim measures.

Housecleaning the Profession: With respect to further eliminating the "bad actors" and generally elevating the standards of medical care, attention must be given not only to the more rigorous enforcement of the Medical Practice Act, but to changes that might be required in that Act to overcome the all-too-frequent reversals by the courts of the decisions of the State Board of Medical Examiners.

Further and intensive study is being given to the possibility of "stepping up" continuing educational programs for the doctors and perhaps making them mandatory. In this connection, the Association recently adopted a resolution which, in part said:

> "RESOLVED, That postgraduate continuing medical education be made a requisite for continuing membership in the Arizona Medical Association; and be it further . . ."

The standards and levels of required postgraduate continuing medical education are being developed at the present time. Failure to live up to these standards will result in expulsion from membership.

Study is also being given to the question of specialty licensure, together with the problem of the doctor in the rural community who, specialist or not, must often practice all fields of general medicine and surgery.

Finally, the records and testimony of the members of hospital review committees must be protected from court subpoena in order to encourage these committees to act with complete thoroughness and full vigor in disciplining hospital staff members. H.B. 52, introduced in the last Session, was designed to accomplish this end, but failed of passage in the Senate.

Recognition of Accident Without Fault: In many ways, medicine is still an art and not a science. The public is only beginning to realize what the doctors have long known: that is, that even with proper and prompt diagnosis and treatment, there are times when a bad result occurs. As the state of the art advances, it is expected that these occurences in the future will diminish, just as they have diminished in the past. In the meanwhile, however, and until a no-fault industrial type law is developed, it is improper for doctors and insurance companies to bear the burden of such events. Therefore, until such a no-fault law is enacted, legislative attention should be given to the definition of malpractice particularly with reference to the res ipsa rule. At the last Session of the Legislature, the Association introduced H.B. 278, again which failed of passage in the House, and which was designed to codify the law as it presently exists and to keep it from further deteriorating to a point where doctors and insurance companies would be held liable for untoward results without fault. Such liability must await the time when the burden and cost thereof is borne by the public generally, and when the limits of liability are circumscribed by the size of the public treasury available for this purpose.

Speed, Expertise and Costs of Court Proceedings: In order to diminish the long timetable and high costs of court trials and also to diminish the number of "nuisance suits", two avenues are being closely inspected by the Medical Association. The first is that of voluntary arbitration, whereunder a patient may elect to arbitrate his malpractice case. At the moment, the principal group having such a pilot plan in effect is the California Hospital Association. The General Counsel of that Association recently has met

with representatives of the State Medical Association, the American Arbitration and the State Hospital Association and has explained the plan in detail. Mr. Stuart Schoenburg of your committee was present at the meeting held August 29, 1970. It was the thinking of the group there present that a pilot plan should seriously be considered for adoption in Arizona. At the same time, it must be recognized that this is not a proved panacea, for the reason that, as pointed out by the California counsel who conceived the plan, not enough time has passed in California to have had even one case arbitrated.

Another avenue being pursued is the statewide adoption of the Pima Medico-Legal Plan. This, again, is met with mixed feelings. Some insurance companies and lawyers believe it has worked effectively in Pima County. Other insurance companies highly disapprove of the plan, claiming that instead of being beneficial it, in fact, will be a deterrent to securing a lowering of malpractice insurance costs. Nonetheless, at the present moment, the State Association appears favorably disposed toward at least giving the plan a community by community "try." In line with this, the Maricopa County Medical Society and Maricopa Bar Association have recently taken steps to establish such a program in Maricopa County.

Insurance Costs: Directly related to insurance costs is the fact that the statute of limitations for medical malpractice runs from the date that the malpractice was or reasonably should have been discovered. In some situations this can be a very great number of years. The insurance companies claim that the Arizona "open-ended" statute should be closed at some point along the line long enough not unduly to prejudice the legal rights of patients, but not so long as to cause an untoward raising of malpractice insurance premium rates. If this committee, having heard the testimony of insurance companies, believes such an amendment is in order, it is hoped that legislation will be introduced to so provide, as has been done in California. With direction from this committee, the Medical Association would be happy to lend its services to such a proposal.

Finally, as this committee knows, the State Medical Association is well down the road toward full exploration of the possible advantages and disadvantages of forming its own medical malpractice insurance company. It is interesting in this regard, however, that the insurance experts with whom the Association is working, do not claim as an advantage that malpractice insurance rates in Arizona should be decreased by such a move. In fact, their preliminary schedule showed an increase (in some cases substantially) over present rates. Instead, the principal advantage claimed by the insurance experts was that malpractice insurance under such a proposal would at least continue to be available at some price for a reasonable length of time. This but underscores the seriousness of the problem.

The Association wants to take this opportunity to thank you and your Committee and the Research Staff of the Legislative Council for the care and attention being given to the problems and solutions discussed in this letter. Further, the Association stands ready and hopes for the opportunity to expand and supplement this written report and answer any questions your Committee may have with respect to it.

Cordially,
The Arizona Medical Association, Inc.
Bruce E. Robinson,
Executive Director

ArMA Reports

THE MINUTES APPEARING IN THIS SECTION HAVE BEEN EDITED TO CONSERVE SPACE. A COMPLETE COPY OF THE MINUTES OF ANY MEETING WILL BE MAILED TO ANY MEMBER REQUESTING THEM.

AD HOC COMMITTEE ON OCCUPATIONAL HEALTH

The organizational meeting of the Ad Hoc Committee on Occupational Health of the Arizona Medical Association, Inc., held at 810 West Bethany Home Road, Phoenix, Arizona, Saturday, September 26, 1970, convened at 1:10 p.m., Eugene J. Ryan, M.D., Chairman, presiding.

ROLL CALL

PRESENT: Drs. Fountain, Freeman P.; Hughes, Joseph M.; Leonard, Robert B.; Pomeroy, Kent L.; Rabe, Florian P.; Ryan, Eugene J., Chairman; Tuchler, Maier I.

Staff: Mr. Robinson, Bruce E., Executive Director.

Guest: Dr. Edwards, Walter V.

EXCUSED: Drs. Brown, Harvey G.; Cohen, Allan I.; Grobe, James L., President-Elect; Landeen, Fred H., President; Miller, Alfred F.; Reger, Jr., Harry L.; Sattenspiel, Edward, Secretary.

HOUSE OF DELEGATES RESOLUTION 10-70

Dr. Ryan reviewed with the committee the background and purpose behind the subject resolution establishing this committee.

GOALS AND OBJECTIVES

Considerable general discussion ensued over the function and goals of the committee and its relationship to the Industrial Commission of Arizona. It was generally agreed that a meeting wth the Commission should be held to discuss the working relationship between the two organizations. Such a meeting should include discussion of such matters as:

Peer Review
Liaison with Insurance Carriers
Processing Claims Procedure
Rehabilitation of Injured Workers
Clinical Evaluations
Forms Review
Other General Subjects that might arise from either group.

IT WAS MOVED AND CARRIED THAT THE CHAIRMAN WOULD PREPARE A LETTER TO THE ICA SUGGESTING A MEETING ALONG THE LINES MENTIONED ABOVE.

CURRENT ICA FEE STRUCTURE

Dr. Ryan reviewed the ICA letter of September 17, 1970 which set forth the new fee schedule as follows:

1. Adoption of the 1964 CRVS as the basis for the schedule which the Commission will publish to have available on the effective date of 12-1-70.
2. Continuation of approval of the use of the A.S.A. Relative Value Study as the basis of charges for Anesthesia.
3. The following are the Unit Values to be applied to the new schedules effective 12-1-70:
 (a) Medicine 7.0
 (b) Surgery 6.5
 (c) Radiology 6.5
 (d) Laboratory 6.0
 (e) Anesthesia 7.0

COMPENSATION FUND

Dr. Edwards, Medical Director for the Compensation Fund, expressed the value of the committee meeting with staff personnel from the Fund so that the committee would have a more realistic viewpoint of the problems faced by carriers.

IT WAS MOVED AND CARRIED THAT A FUTURE MEETING OF THE COMMITTEE BE DEVOTED TO MEETING WITH STAFF OF THE COMPENSATION FUND AND THE CHAIRMAN IS TO WORK OUT THE DETAILS WITH DR. EDWARDS.

Meeting adjourned 3:31 p.m.

Edward Sattenspiel, M.D.
Secretary
by
Bruce E. Robinson
Executive Director

AD HOC COMMITTEE ON LOCUM TENENS AND HEALTH MANPOWER

Meeting of the Ad Hoc Committee on Locum Tenens and Health Manpower of the Arizona Medical Association, Inc., held Sunday, September 20, 1970 at 810 West Bethany Home Road, Phoenix, Arizona, convened at 10:12 a.m., Manus R. Spanier, M.D., Chairman, presiding.

MINUTES

Minutes of the meeting of April 19, 1970 were approved as distributed.

A HEALTH COMMUNICATIONS SYSTEM FOR THE STATE OF ARIZONA

Mr. Frederick S. Burrell, Manager, Advanced Projects Development Urban Systems Programs of the General Electric Company and his associate Mr. Edward King, presented an extended presentation on their OEO grant proposal to provide a health communications system between areas of the Navajo Reservation and major medical centers in Arizona. In general, the objectives of the program would be:

1. Maintain high doctor-patient rapport.
2. Provide doctor's care where and when needed.
3. Build on available technology.
4. Adapt existing designs and equipment.
5. Alter doctor's patient-visit capacity favorably.

Mr. Burrell pointed out that his organization is working with many Arizona agencies includng USPHS, Regional Medical Programs, University of Arizona College of Medicine, Good Samaritan Hospital, St. Joseph's Hospital (Phoenix), State Health Department and others.

He stated that the pilot project would be thirty months in duration. The grant application is currently being processed and they anticipate final word within thirty to sixty days. The amount of the application was five million dollars of which four million would be for equipment and the balance for personnel training, etc.

THE "PHYSICIAN ASSISTANT" OF ARIZONA

Resolution 13-70 — 4/25/70

The committee reviewed the subject resolution directing the Association to develop a "physician assistant" program.

Legality

The Board of Medical Examiners opinion of 1/13/70 regarding the illegality of the physician assistant as well as Edward Jacobson's concurring opinion of 5/12/70 were reviewed in-depth by the committee. Considerable discussion ensued regarding the appropriate legislative changes needed to correct this problem. Following a wide variety of suggestions and comments on the appropriate steps to be taken:

IT WAS MOVED AND CARRIED THAT THE CHAIRMAN APPOINT A SUB-SECTION TO STUDY THE PROPOSITION OF THE PHYSICIAN ASSISTANT AND CONSIDER THE PROPOSED LEGISLATIVE CHANGES AS MADE BY LEGAL COUNSEL AND REPORT BACK AT THE NEXT MEETING.

It was recommended that following the drafting of such legislation and rules and regulations that consultations be held with other interested groups such as the Hospital Association, Nurses' Association, Osteopathic Association, etc. in an attempt to secure their support.

REGIONAL MEDICAL PROGRAM DEMOGRAPHIC STUDY

Dr. Thompson reported that the demographic study is progressing. Over 80% of the questionnairs have been returned, but processing has not been completed. He hopes to have a more complete report for the next meeting.

LOCUM TENENS PROGRAM

Mr. Robinson reported that since the last meeting a system has been established to get physicians who are in need of locum tenens in contact with physicians who are looking for locum tenens coverage of their practice. It was suggested that a periodic survey be made to determine how effective this program has been.

Meeting adjourned 12:46 p.m.

Edward Sattenspiel, M.D.
Secretary
by
Bruce E. Robinson
Executive Director

BENEVOLENT AND LOAN FUND COMMITTEE

Meeting of the Benevolent and Loan Fund Committee of the Arizona Medical Association Inc., held Sunday, August 30, 1970, 810 West Bethany Home Road, Phoenix, Arizona, convened at 10:03 a.m., Daniel T. Cloud, M.D., Chairman, presiding.

ROLL CALL

PRESENT: Drs. Cloud, Daniel T., Chairman, DuVal, Merlin K., Vaughn, Jr., Cecil C.

Staff: Robinson, Bruce E.

EXCUSED: Drs. Chloupek, William N., Dew, Philip E., Treasurer, Ergenbright, Willard V., Grobe, James L., President-Elect, Landeen, Fred H., President, Sattenspiel, Edward, Secretary.

MINUTES

Approved minutes of the meeting of the Benevolent and Loan Fund Committee held August 24, 1969.

RESOLUTION 7-70

Dr. Cloud reviewed the subject resolution which was adopted by the House of Delegates April 25, 1970.

GUIDELINES FOR GRANTING SCHOLARSHIPS

Dr. Cloud pointed out that for the first time funds for scholarship grants are less than enough to cover applications for grants. This year there are funds for seven grants whereas 19 valid applications have been received. It was pointed out that due to the high and uniform grade point averages of the applicants that granting purely on the basis of scholastic standing would have little meaning. Many other methods of granting scholarships were discussed.

IT WAS AGREED THAT AS LONG AS SCHOLASTIC STANDING OF THE APPLICANTS REMAINS EQUAL THAT THE FACTOR OF NEED WOULD BE THE PRIME CONSIDERATION FOR GRANTING SCHOLARSHIPS.

DISTRIBUTION OF FUNDS AND DETERMINATION OF NEED

The question was raised as to whether the Committee had access to enough basic financial information to make an informed determination. It was noted that the University of Arizona College of Medicine did have the needed information on those who were accepted at the College of Medicine (17 out of the 19 applicants).

THE COMMITTEE DETERMINED TO DISTRIBUTE THE AVAILABLE FUNDS IN UNITS OF $500 BETWEEN THOSE GOING TO OUT OF STATE SCHOOLS AND THOSE ATTENDING THE UNIVERSITY OF ARIZONA COLLEGE OF MEDICINE IN PROFORTION TO THE NUMBER OF APPLICATIONS RECEIVED FOR EACH CATEGORY.

THE BENEVOLENT AND LOAN FUND COMMITTEE WOULD JUDGE THE NEED FACTOR FOR THOSE GOING OUT OF STATE.

THE UNIVERSITY OF ARIZONA COLLEGE OF MEDICINE WOULD BE ASKED TO RANK, ON THE BASIS OF NEED, THOSE APPLICANTS WHO WILL BE ATTENDING THE UNIVERSITY OF ARIZONA COLLEGE OF MEDICINE.

OUT OF STATE STUDENT SCHOLARSHIP GRANTS

Because of the proportion of out of state applications (2 out of 19), it was determined to grant one $500 scholarship to this group.

IT WAS MOVED AND CARRIED THAT MICHAEL J. VOVAKES BE AWARDED THIS GRANT.

IN STATE STUDENT SCHOLARSHIP GRANTS

Mr. Robinson was instructed to contact George Adams, M.D., Ph.D., Assistant Dean for Student Affairs at the College of Medicine and to ask him to rank them on the basis of need and report back the findings to the Chairman.

ROBERT CARPENTER SCHOLARSHIP AWARD

It was reported that this Committee has been asked to pick out a recipient for the subject scholarship(s). Mr. Robinson reported that two $250 awards had been determined upon. Following considerable discussion it was determined that the Chairman would contact Mr. Carpenter to see if the award could be changed to one $500 award so that it would have equal stature with the Arizona Medical Association awards.

COMMUNICATIONS

Michael Rollin Manning's letter of appreciation was received by the Committee.

OTHER BUSINESS

Promotion

The Committee instructed staff to prepare promotional information regarding the Scholarship program to be directed to the Deans of all medical schools in the United States. Such material to be distributed by April 1 each year.

Deadline for Receipt of Applications

In order to carry out the new program as determined at this meeting, a deadline for receipt of applications was set at August 1st of each year, subject to consultation with Dr. Adams to determine if an earlier date would be more appropriate.

Meeting adjourned 12:11 p.m.

Edward Sattenspiel, M.D.
Secretary
by
Bruce E. Robinson
Executive Director

ADDENDUM TO THE BENEVOLENT AND LOAN FUND COMMITTEE MEETING OF AUGUST 30, 1970

On September 11, 1970 communication was received from the University of Arizona, College of Medicine's Assistant Dean for Student Affairs as was requested by

the committee during the August 30, 1970 meeting. Of the seventeen applications submitted for ranking according to need, the top seven are:

1. Lefakane, Solomon B. I.
2. James, Terry L.
3. Eide, Eugenia E.
4. Wong, Alan L.
5. McEachern, Larry E.
6. Hagen, Nick S.
7. Keserauskis, Patricia L.

ROBERT CARPENTER SCHOLARSHIP AWARD

As was previously determined, the first ranking student, Solomon B. I. Lefakane, has been referred to Blue Shield as the recipient of the Robert Carpenter Scholarship Award. Mr. Carpenter of Blue Shield has been so advised and will handle notification and presentation.

ARMA SCHOLARSHIP AWARDS

The recipients of the 1970 Arizona Medical Association Scholarship Awards for students at the University of Arizona College of Medicine are as follows:

1. Eide, Eugenia E.
2. Hagen, Nick S.
3. James, Terry L.
4. Keserauskis, Patricia L.
5. McEachern, Larry E.
6. Wong, Alan L.

Edward Sattenspiel, M.D.
Secretary
by
Bruce E. Robinson
Executive Director

AD HOC COMMITTEE ON CONTINUING MEDICAL EDUCATION

The meeting of the Ad Hoc Committee on Continuing Medical Education of the Arizona Medical Association held Tuesday, September 22, 1970, in the headquarters building, 810 West Bethany Home Road, Phoenix, convened at 7:04 p.m., Robert E. T. Stark, M.D., Chairman, presiding.

MINUTES

The minutes of the meeting held June 17, 1970 were approved as distributed.

MEDICAL EDUCATION

Dr. Stark reviewed the AMA Physician Reecognition Award, the Oregon Medical Association Postgraduate Education Program, and the California Medical Association Certificate in Continuing Medical Education. He advised that he will be attending the Second National Conference of State Medical Association Representatives on Continuing Medical Education on October 13 through 15; and that this will provide an opportunity to explore in greater detail, the programs being considered.

IT WAS MOVED AND CARRIED THAT THE COMMITTEE REVIEW THE AMA PHYSICIAN RECOGNITION AWARD, THE CALIFORNIA MEDICAL ASSOCIATION CERTIFICATE IN CONTINUING MEDICAL EDUCATION, AND THE OREGON MEDICAL ASSOCIATION POSTGRADUATE EDUCATION PROGRAM IN DETAIL FOR DISCUSSION DURING THE NEXT MEETING.

PHOENIX STROKE FACILITY

The committee reviewed a project proposal submitted by Richard A. Thompson, M.D. for endorsement by the Association. This proposal is to be submitted to the Arizona Regional Medical Program for their consideration as a cooperative effort between the Barrow Neurological Institute of St. Joseph's Hospital & Medical Center and the Institute of Rehabilitation Medicine of Good Samaritan Hospitals, Inc. to establish a program of continuing education in stroke care for physicians, nurses, physical therapists, and other health care personnel.

IT WAS MOVED AND CARRIED THAT THE COMMITTEE RECOMMEND ENDORSEMENT OF THE CONCEPT OF COOPERATIVE EFFORT TO THE BOARD OF DIRECTORS FOR THEIR CONSIDERATION.

Meeting adjourned 8:05 p.m.

Edward Sattenspiel, M.D.
Secretary
by
Gary L. Barnett
Associate Director

BOARD OF DIRECTORS

Meeting of the Board of Directors of the Arizona Medical Association, Inc., held at 810 West Bethany Home Road, Phoenix, Arizona, Octiber 4, 1970, a quorum being present, convened at 10:49 a.m., Fred H. Landeen, M.D., President and Chairman presiding.

ROLL CALL

PRESENT: Drs. Cloud, Daniel T., Dew, Philip E., Treasurer, Flynn, Richard O., Past President, Green, John R., Jarrett, Paul B., Landeen, Fred H., President, Lewis, Leo L., Mertz, George H., Moody, Deward G., Price, Robert A., Sattenspiel, Edward, Secretary, Schaller, Donald F., Shapiro, Seymour I., Standifer, John J., Vice President.

Staff: Messrs. Barnett, Gary L., Associate Executive Director, Jacobson, Edward, General Counsel, Robinson, Bruce E., Executive Director.

Guests: Drs. Dudley, Jr., Arthur V., DuVal, Merlin K., Dean, College of Medicine, University of Arizona, Helme, William B., President, Maricopa County Medical Society, Koren, Paul, Medical Director, Arizona Blue Cross-Blue Shield, Langston, Don V., Chairman, ArMPAC, Wagner, Albert G., Chairman, Professional Committee; Messrs.: Boykin, Paul R., Executive Director, Board of Medical Examiners, Kilbourne, Frederick W., Consulting Actuary, Milliman & Robertson, Inc., Morrison, David B., Assistant Director, AMA Field Service Division.

EXCUSED: Drs. Bill, E. Charles, Czerny, Everett W., Grobe, James L., President-Elect, Henderson, Charles E., Limbacher, Henry P., Lyle, William A., Payne, Willam G., Reed, Wallace A., Scott, William C., Steen, William B.

WELCOME

Dr. Landeen introduced the guests and Dr. Price gave the invocation.

MINUTES

Minutes of the meeting held July 26, 1970 were approved as distributed.

INSURORS MANAGEMENT COMPANY PROPOSAL

Frederick W. Kilbourne, Consulting Actuary with the firm of Milliman & Robertson, Inc., Pasadena, Cali-

fornia presented his evaluation of the IMC proposal as follows:

"You have asked that I review the proposition that the Arizona Medical Association form a specialty insurance company to cope with the medical malpractice insurance problems faced by many of your members. In particular, you have asked me to evaluate the feasibility of the proposal of the Insuror Management Company in this regard. As a corollary matter, you have also inquired about the likelihood that any private insurer would cover Arizona doctors through some acceptable arrangement with your Association.

"This written report of my findings and conclusions will be supplemented and supported in our discussion at your office in Phoenix on October 4. An outline form is used below for ease of reference and to facilitate this presentation.

"The medical malpractice insurance problems referred to above are well known to you. It may be well to list some of the causes and effects, however, in order to emphasize the seriousness of the situation. When it not for the severity of the problems, it would be folly for any group of doctors to consider forming an insurance company. Given the problems, however, the consideration, if not the implementation, makes sense. Among the causes and effects are the following:

1) Coverage has become very difficult to obtain, particularly for new doctors and certain specialists.
2) Recent premium rate increases have been severe, and the trend is adverse.
3) The number of carriers active in the state is no more than five, and may be diminishing.
4) Partial self-insurance is imposed by means of discovery clauses and deductibles.
5) Jury awards grow increasingly large, and may feed on their own publicity.
6) The trend to absolute liability continues within the courts.
7) The statute of limitations runs from the date of discovery of the loss, not from the date of loss.
8) The long delays in settling most cases, and in even reporting some, make rates subject to an unusual degree of uncertainty.
9) The unusual doctor who really is a menace is often permitted to practice in spite of his record.
10) Medical-legal panels are believed by some to create more problems than they solve.
11) Inflation has a compounding effect on long-delayed claim settlements and payments.

"The Arizona Medical Association has the responsibility to solve, or help solve, the malpractice problems of its members if it reasonably can do so. The IMC proposal, to establish and manage an insurance company to be owned by individual members of the Association, conceivably could provide the vehicle for fulfilling that responsibility. Among the favorable, or potentially favorable, aspects of the proposal are the following:

1) Coverage availability would be ensured for most doctors so long as the program continued.
2) Premium rates would be reflective of Arizona experience only, and would vary with the degree of risk in a responsive manner.
3) Investment income would be given full recognition in the overall ratemaking and dividend process.
4) The program and company would have the advantage of the full support of the Arizona Medical Association.
5) Insuror Management Company is a member of the Pacific Employers Group and thus in turn a member of the Insurance Company of North American Group, an organization enjoying an excellent reputation for professional competence and reliability.
6) The availability of reinsurance would be enhanced by the reinsurance contacts of the INA Group.
7) The program would utilize the agency system, thereby gaining the invaluable support of Arizona insurance agents.
8) The survey conducted by the Association indicates that the membership would provide an important foundation of support.
9) The company would be a specialty insurer, writing medical malpractice coverage only for at least several years, thereby increasing the chance of success.
10) Profits would be realized if current rate levels of other carriers reflect an attempt to make up for prior losses.

"There is an imposing list of unfavorable, or potentially unfavorable, aspects of the proposal, however, There also are additional considerations regarding the above favorable factors. Comments follow in the paragraphs below.

"In spite of a prevalent belief to the contrary, Insurance Rating Board rates in the state are apparently based entirely on Arizona experience. Any expectation of favorable rate change due to the elimination of supposed subsidies is probably illusory.

"The officers and directors of IMC are an impressive group of insurance professionals. With the exception of Warren Cleary, however, they do not to my knowledge have direct and extensive backgrounds in medical malpractice insurance. This could be a serious initial shortcoming in providing management services in this unique specialty line.

"IMC is a non-risk-taking service organization whose existing clients are both connected with the parent group. Their undertaking management of the proposed company would represent a venture into virgin territory. While I believe that IMC has an excellent future, both as a concept and as a specific organization, I question whether they are fully prepared at present to run an insurance operation in a highly volatile line for a group of doctors several hundred miles away from their base of operations.

"There is no question but that the reinsurance commitment secured by IMC for the proposed company is highly favorable in today's market. There are a number of ways, however, in which the arrangement could prove disappointing to the Association and to IMC. Treaty reinsurance would be afforded only for preferred risks,

with individual underwriting and selection for all others, being those for whom the coverage problem is most critical as things stand. The reinsurer would be free to cancel the relationship with just 90-days notice, and the runoff provision would be a year or less. The proposed rates do not appear unreasonable, but they would probably strain dividends otherwise payable on retained coverage.

"The survey results were very favorable in most respects, but there are two points that must be mentioned. One is that the survey omits the critical question of whether the doctor would switch from his present coverage to Association coverage in the absence of any financial incentive to do so. The other is that the output is in error regarding the amount that the doctor would invest in the proposed company, although the survey responses do indicate some willingness to contribute on the part of a majority of the respondents.

"Among the unfavorable, or potentially unfavorable, aspects of the proposal are the following:

1) The actual investment in the proposed company may be substantially below that indicated in the survey.
2) The preferred risk doctors may find inertia more compelling than Association loyalty, leaving the proposed company with inadequate aggregate premium and a disproportionate share of high risk doctors.
3) The survey, which implied that premium reductions might follow, was somewhat biased in favor of the formation of a company.
4) The Arizona Insurance Department may not agree that $2,000,000 capital and surplus and $1,000,000 annual premium are adequate amounts.
5) The "uncontrolled rate" situation now effective in Arizona with respect to malpractice insurance may restore competition to the scene.
6) A no-fault, workmen's compensation-type law may be enacted with reference to the relationship between doctor and patient.
7) First-party accident insurance-type laws may cause the patient to cover himself against loss except in the case of gross negligence on the part of the doctor.
8) The increase in retention from $10,000 in the proposal to $15,000 in the reinsurance agreement may have caused the capital and surplus requirement to exceed $2,000,000.
9) Profit sharing with IMC seems inappropriate in view of the fact that they offer services at a fixed price.
10) IMC may experience difficulty in developing an expert supporting staff, or an expert subcontractor relationship, in a specialty line over a short period of time.
11) Survey respondents appear to include a relatively high proportion of high-premium high-risk doctors.
12) The Association would be very embarrased if the company should fail, and might be forced to consider membership assessments if financial difficulties arose but appeared to be temporary.
13) The malpractice problem may be met by federal government action, perhaps leaving the company ready to perform but without a market.
14) The model office projection prepared by IMC assumed level rates into the future, whereas the more-likely increasing rates would probably have a depressing effect on earnings due to the time lag involved.
15) The owner/nonowner split within the Association membership could prove divisive.

"It is interesting to note that IMC has set forth three necessary conditions for their support of the proposed program and company. One is that the survey is truly representative of all Arizona doctors.

"Another is that $2,000,000 capital and surplus be obtainable. The third is that $1,000,000 annual premium be secured at an early date. I agree with Dick Block that these conditions are necessary as minimums, and think it more likely than not that one or more would not be fulfilled.

"Weighing the pros and cons, my recommendation is thus that the Arizona Medical Associaton not form an insurance company at this time. It is my opinion that the risks outweigh the potential gains and that the program under consideration would be, in spite of its many merits, more likely to be unsuccessful than successful.

"The chance that the Association could establish a reasonable relationship with a private insurer in the malpractice business is fairly good. Among the characteristics that such a program might have are the following:

1) Coverage guarantees subject to rigorous initial and renewal underwriting by an Association panel.
2) Coverage risk borne largely by the insurer and reinsurers.
3) Premium rates reflective of the experience of the group.
4) Medical-legal panel operation throughout the program.
5) Recognition of investment income in rates.
6) Full coverage of claims by date of incurral rather than date of reporting.
7) Association participation in policy decisions affecting the program.

"The American Medical Association has proposed endorsement of a group medical malpractice program to be offered by CNA Corporation to state and local medical societies. I hope to have information on the current status of this program for the October 4 meeting.

"Private insurers contacted in the course of this study displayed a wide variety of reactions to the concept of covering a state medical association for malpractice insurance. Responses included the following:

1) No interest under any circumstances.
2) No interest at this time pending results of a similar venture.
3) Officially out of the market, but willing to consider group coverage.
4) Interested in discussing the possibility of establishing a mutually acceptable program.

"My second recommendation, then, is that the Association investigate the chances of establishing a group program with a private insurer to provide medical mal-

practice insurance on a reasonable basis for the members. In spite of their announced intention not to write medical malpractice insurance any longer, I think it would be appropriate, in view of the groundwork that has been done by IMC, to ask Pacific Employers Group to consider augmenting their proposal to accept the insurance risk as well as to provide the necessary services."

The Board also considered IMC's appraisal of Mr. Kilbourne's report dated October 3, 1970. This was followed by an extended period of questions directed to Mr. Kilbourne.

IT WAS MOVED AND CARRIED THAT ArMA DEFER ACTION ON THE IMC PROPOSAL UNTIL THE ASSOCIATION INVESTIGATES THE CHANCES OF ESTBLISHING A GROUP PROGRAM WITH A PRIVATE INSURER TO PROVIDE MEDICAL MALPRACTICE INSURANCE ON A REASONABLE BASIS FOR THE MEMBERSHIP.

ArMPAC BOARD OF DIRECTORS

Don V. Langston, M.D., Chairman of the Board of Directors of ArMPAC reported that his Board has met and has distributed funds to the various congressional candidates. He also reported that a significant amount has been contributed to various state legislative races this year.

BOARD OF DIRECTORS

William H. Lyle, M.D. — Resignation

Dr. Lyle's resignation was accepted with deep regret. Counties located in the Southwestern District are to be contacted for suggested replacements at the next meeting.

William B. McGrath, M.D. — Resignation

The Board was advised that Dr. McGrath had submitted his resignation as a member of the Board of Medical Examiners. This resignation to be acted upon by BOMEX at their meeting scheduled for October 11, 1970.

IT WAS MOVED AND CARRIED THAT SHOULD DR. McGRATH'S RESIGNATION BE ACCEPTED BY THE BOARD OF MEDICAL EXAMINERS; THAT THE FOLLOWING THREE NAMES BE RECOMMENDED TO THE GOVERNOR AS CANDIDATES FOR FILLING THE VACANCY: MONROE H. GREEN, M.D., DAVID PENT, M.D., MEYER MARKOVITZ, M.D.

It was noted that there is a need for a psychiatrist on the BOMEX Board and Dr. Moody asked that this be given consideration when the regular 1971 appointment is considered.

Frank Marcus, M.D. — Membership

The request of Dr. Marcus that he be given affiliate membership in Pima County Medical Society and the State Association without being a member of the American Medical Association was given consideration. It was noted that no recommendation from the Pima County Medical Society has been received. It was determined to defer any action on the matter until a recommendation from the Pima County Medical Society was received.

EXECUTIVE COMMITTEE

Membership Classification Changes Approved

Maricopa County

1. Herman Lipow, M.D. — Active to Associate — Account Residency effective 8/1/70—Dues Exempt.
2. Robert E. G. Norton, M.D. — Service to Associate — Account Residency effective 1/1/71—Dues Exempt.
3. William B. Patterson, M.D. — Active to Associate — Account Illness effective 7/1/70—Dues Exempt.

Navajo County

1. Robert J. Haley, III, M.D. — Active to Associate — Account Residency effective 1/1/71—Dues Exempt.

Financial Report

Dr. Dew reviewed the financial statement for the period ending September 30, 1970. No request for budget adjustments were made. REPORT RECEIVED.

ARTICLES & BYLAWS COMMITTEE

It was announced that this committee would be meeting in early December and that any suggested changes in the Bylaws should be submitted to Dr. Henderson as early as possible.

CONTINUING MEDICAL EDUCATION, AD HOC COMMITTEE ON

Regional Medical Program — Phoenix Stroke Facility

Dr. Wagner reviewed the proposed Phoenix Stroke Facility project for the Board. Several editorial changes regarding the St. Mary's Hospital Stroke Facility were suggested.

IT WAS MOVED AND CARRIED THAT THE BOARD GIVE ENDORSEMENT OF THE CONCEPT OF A PHOENIX STROKE FACILITY WITH THE UNDERSTANDING THAT SUCH APPROVAL DOES NOT RELATE TO ANY ONE SPECIFIC FACILITY.

Membership Changes

On the recommendation of the Chairman the Board approved removing Drs. Walter Eicher and William Dunn due to nonattendance at committee meetings.

IT WAS MOVED AND CARRIED TO CONFIRM THE APPOINTMENT OF ALBERT G. WAGNER, M.D., TO THIS COMMITTEE.

FINANCE COMMITTEE

Confirmation

IT WAS MOVED AND CARRIED TO CONFIRM THE FOLLOWING APPOINTMENTS:

1. PHILIP E. DEW, M.D., CHAIRMAN
2. PATRICK P. MORACA, M.D.
3. SEYMOUR I. SHAPIRO, M.D.
4. JOHN J. STANDIFER, M.D.

Report

Dr. Dew reported on the first meeting of the committee held October 3, 1970. He stated that the committee dealt primarily with organizational aspects of the committee's function.

GRIEVANCE COMMITTEE

It was reported that Dr. Greenblatt has chosen to appeal the decision of this Association's Grievance Committee and its confirmation by the Board of Directors to the Judicial Council of the American Medical Association. The Judicial Council will be meeting in November to hear this case.

MEDICAL ECONOMICS COMMITTEE

The Board received the Industrial Commission of Arizona's letter of September 17, 1970 setting forth the new fee schedule to be effective 12/1/70 as follows:

"1. Adoption of the 1964 CRVS as the basis for the schedule which the Commission will publish to have available on the effective date of 12/1/70.

"2. Continuation of approval of the use of the A.S.A.

Relative Value Study as the basis of charges for Anesthesia.

"3. The following are the Unit Values to be applied to the new schedules effective 12/1/70.

	Unit Value
(a) Medicine	7.0
(b) Surgery	6.5
(c) Radiology	6.5
(d) Laboratory	6.0
(e) Anesthesia	7.0"

OCCUPATIONAL HEALTH, AD HOC COMMITTEE ON

IT WAS MOVED AND CARRIED TO CONFIRM THE FOLLOWING APPOINTMENTS:

1. HARVEY G. BROWN, M.D.
2. ALLAN I. COHEN, M.D.
3. FREEMAN P. FOUNTAIN, M.D.
4. JOSEPH M. HUGHES, M.D.
5. ROBERT B. LEONARD, M.D.
6. ALFRED F. MILLER, M.D.
7. KENT L. POMERY, M.D.
8. FLORIAN P. RABE, M.D.
9. HARRY L. REGER, M.D.
10. MAIER I. TUCHLER, M.D.

It was noted that Eugene Ryan, M.D., Chairman was confirmed at the July 26, 1970 Board meeting.

PROFESSIONAL LIABILITY LEGISLATION, AD HOC COMMITTEE ON

The matter of joining with the Arizona Hospital Association for the purposes of developing a joint arbitration project for Arizona was discussed in some depth.

IT WAS MOVED AND CARRIED TO PROCEED JOINTLY WITH THE ARIZONA HOSPITAL ASSOCIATION IN THE DEVELOPMENT OF SUCH A PROGRAM. THE PRESIDENT WAS DIRECTED TO APPOINT ArMA MEMBERS TO A JOINT COMMITTEE.

AMA DELEGATES

Attendance

After considerable discussion it was determined that the following would be authorized to attend the Boston meeting. The two Delegates, two Alternate Delegates, the Executive Director and the President-Elect.

Question was raised by Dr. Jarrett as to the value of his attending the meeting. It was determined that should Dr. Jarrett choose not to attend, that it would be with full approval of the Board.

COMMUNICATIONS

John P. Heileman, M.D. — Letter 8/28/70

Dr. Heileman's letter regarding abortion solicitation was reviewed by the Board. It was noted that the AMA's Judicial Council has taken action in this matter.

William Dunn, M.D. — Letter 9/14/70

Dr. Dunn's letter requesting a donation to CODAC was discussed. It was determined that due to a shortage of funds that we would not be able to assist in this matter at this time.

Arizona State Pharmacy Board

The communication regarding preprinted prescription forms with the facsimile of the physician's signature printed thereon was reviewed. RECEIVED FOR INFORMATION.

Sister Francesca Fischer's Letter 9/30/70

The Sister's letter requesting endorsement of a symposium on the Management of Anxiety and Depression scheduled for 12/12/70 was reviewed.

IT WAS MOVED AND CARRIED THAT ArMA ENDORSE THIS PROGRAM.

OTHER BUSINESS

Council on Professions

Dr. Flynn reported that little activity has occurred during the summer but that meetings are planned for the near future.

Blue Cross-Blue Shield Cost Sharing

The Blue Cross-Blue Shield contribution toward printing of the brochure "You, Medicare, and Your Physician" was acknowledged with appreciation.

Malpractice Insurance Position Paper

The matter of the Association's position on malpractice as requested by Senator Kenneth Cardella for his Interim Legislative Committee on malpractice was presented.

The original paper dated 9/18/70 did not satisfy the Senator as it was not the "official" position of the Association. It was pointed out that obtaining such endorsement within the original time limit specified by the Senator was not possible.

The Board reviewed the 9/18/70 document and made several editorial changes.

IT WAS MOVED AND CARRIED THAT THIS STATEMENT, AS EDITED, BE THE OFFICIAL POSITION OF THE ASSOCIATION; AND THAT THE PAPER WOULD BE SUBMITTED TO THE GENERAL MEMBERSHIP VIA ARIZONA MEDICINE FOR COMMENT.

The text of the statement is as follows:

"The statement incorporated in this letter was unanimously adopted by the Board of Directors of this Association at its meeting held Sunday, October 4, 1970. It thus is the official statement of the Association.

"Because of its importance, we are following the suggestion mutually agreed upon in our luncheon with you Friday, October 2, 1970, to print this statement in full in the forthcoming November issue of **Arizona Medicine** which will be distributed to all 1,697 active members of the Association on or about November 15th. And, that printing will solicit letters from any doctors who disagree with any part or all of that statement, thus giving the Association knowledge of whether the unanimity of the Board of Directors is an accurate reflection of the position of the member physicians. We will not only send you a copy of the issue of **Arizona Medicine,** but also apprise you of any letters of disagreement we might receive as the result of this printing.

"Therefore, it is fair to say that this letter reflects the present views of those members of the Association who have been actively concerning themselves with this problem.

"**GOAL:** The Association's goal is to provide better medical care for Arizona citizens. This means that high quality medical care must be available at prices people can afford to all Arizona citizens whether they are taken ill or are involved in an accident in a rural or remote area or in a metropolitan center.

"**PRINCIPAL PROBLEMS:** The direct result of the malpractice insurance crisis is that the availability of health care is reduced and the cost is increased.

"Malpractice coverage is becoming more difficult to secure both for new physicians and for physicians in certain high-risk specialties. When it can be secured, the premium cost is high and the insurance industry advises that it is likely soon to become substantially higher.

"There is evidence both in Arizona and nationally that because of these factors, new doctors are being discouraged from entering private practice, particularly as solo practitioners in small communities and deprived areas where they are most needed, and that senior physicians are retiring earlier than normal when they are still fully capable of providing much needed service.

"Another effect is to encourage "over-medicine" and "over-hospitalization" in an effort by the physician to avoid the possibility of a malpractice action. This, along with the soaring costs of malpractice insurance, increases the cost of patient care and reduces the availability of physicians and health care facilities at a time when every effort should be made to lower costs and expand provisions for care.

"THE CAUSE OF THE HIGH COST OF INSURANCE: We are advised that the principle factor causing the high cost, and sometimes unavailability of medical malpractice insurance is the legal and investigational expense related to the adversary proceeding used to settle malpractice claims. One insurance company has reported that of the total funds it pays out in its malpractice business, 15 per cent goes to plaintiff's attorneys, 55 per cent is taken by defense attorney fees and defense and investigational costs, and only 30 per cent actually goes to patients.

"High jury verdicts and malpractice cases, which are becoming a pattern both country-wide and in Arizona, consistent with a similar pattern in automobile accident cases, also increase the costs. But, perhaps of greater significance, is the publicity frequently given these verdicts which stimulates the filing of claims, many of which do not prove to be legitimate, but which nevertheless add to the insurance companies' legal defense costs.

"Another principle cause is the open-end statute of limitations which puts the insurance companies in a position of not knowing when an insured risk is terminated. Again, slow, cumbersome and expensive court procedures require the insurance companies to set reserves for today's malpractice incidents against what will be the even more highly inflated dollar of several years from today when the claim, if valid, must be paid.

"Finally, and not to be avoided or brushed under the rug, is the continuing problem of elevating the general level of medical care and more particularly the rigorous weeding out the "bad actors" from the profession.

"REMEDIES: In the last analysis, the remedy for high insurance costs will probably have to be akin to the solution found for industrial accidents through the Industrial Compensation Act. This will mean that a top limitation will be set for various events of patient injury and will embody the concept of compensation without fault, all to be handled by an agency designed to operate more efficiently, more quickly and less expensively than the courts. Realistically, however, this solution may be some years away. Hence, the Association has given careful thought to a variety of interim measures.

"Housecleaning the Profession: With respect to further eliminating the "bad actors" and generally elevating the standards of medical care, attention must be given not only to the more rigorous enforcement of the Medical Practice Act, but to changes that might be required in that Act to overcome the all-too-frequent reversals by the courts of the decisions of the State Board of Medical Examiners.

"Further and intensive study is being given to the possibility of "stepping up" continuing educational programs for the doctors and perhaps making them mandatory. In this connection, the Association recently adopted a resolution which, in part said:

> "RESOLVED, That postgraduate continuing medical education be made a requisite for continuing membership in the Arizona Medical Association; and be it further . . ."

"The standards and level of required postgraduate continuing medical education are being developed at the present time. Failure to live up to these standards will result in expulsion from membership.

"Study is also being given to the question of specialty licensure, together with the problem of the doctor in the rural community who, specialist or not, must often practice all fields of general medicine and surgery.

"Finally, the records and testimony of the members of hospital review committees must be protected from court subpoena in order to encourage these committees to act with complete thoroughness and full vigor in disciplining hospital staff members. H.B. 52, introduced in the last Session, was designed to accomplish this end, but failed of passage in the Senate.

"Recognition of Accident Without Fault: In many ways, medicine is still an art and not a science. The public is only beginning to realize what the doctors have long known: that is, that even with proper and prompt diagnosis and treatment, there are times when a bad result occurs. As the state of the art advances, it is expected that these occurrences in the future will diminish, just as they have diminished in the past. In the meanwhile, however, and until a no-fault industrial type law is developed, it is improper for doctors and insurance companies to bear the burden of such events. Therefore, until such a no-fault law is enacted, legislative attention should be given to the definition of malpractice particularly with reference to the res ipsa rule. At the last Session of the Legislature, the Association introduced H.B. 278, again which failed of passage in the House, and which was designed to codify the law as it presently exists and to keep it from further deteriorating to a point where doctors and insurance companies would be held liable for untoward results without fault. Such liability must await the time when the burden and cost thereof is borne by the public generally, and when the limits of liability are circumscribed by the size of the public treasury available for this purpose.

"Speed, Expertise and Costs of Court Proceedings: In order to diminish the long timetable and high costs of court trials and also to diminish the number of "nuisance suits," two avenues are being closely inspected by the Medical Association. The first is that of voluntary arbitration, whereeunder a patient may elect to arbitrate his

malpractice case. At the moment, the principal group having such a pilot plan in effect is the California Hospital Association. The General Counsel of that Association recently has met with representatives of the State Medical Association, the American Arbitration and the State Hospital Association and has explained the plan in detail. Mr. Stuart Schoenburg of your committee was present at the meeting held August 29, 1970. It was the thinking of the group there present that a pilot plan should seriously be considered for adoption in Arizona. At the same time, it must be recognized that this is not a proved panacea, for the reason that, as pointed out by the California counsel who conceived the plan, not enough time has passed in California to have had even one case arbitrated.

"Another avenue beilng pursued is the state-wide adoption of the Pima Medico-Legal Plan. This, again, is met with mixed feelings. Some insurance companies and lawyers believe it has worked effectively in Pima County. Other insurance companies highly disapprove of the plan, claiming that instead of being beneficial it, in fact, will be a deterrent to securing a lowering of malpractice insurance costs. Nonetheless, at the present moment, the State Association appears favorably disposed toward at least giving the plan a community by community "try." In line with this, the Maricopa County Medical Society and Maricopa Bar Assocation have recently taken steps to establish such a program in Maricopa County.

"Insurance Costs: Directly related to insurance costs is the fact that the statute of limitations for medical malpractice runs from the date that the malpractice was or reasonably should have been discovered. In some situations this can be a very great number ofyears. The insurance companies claim that the Arizona "open-ended" statute should be closed at some point along the line long enough not unduly to prejudice the legal rights of patients, but not so long as to cause an untoward raising of malpractice insurance premium rates. If this committee, having heard the testimony of insurance companies, believes such an amendment is in order, it is hoped that legislation will be introduced to so provide, as has been done in California. With direction from this committee, the Medical Assocation would be happy to lend its services to such a proposal.

"Finally, as this committee knows, the State Medical Association well down the road toward full exploration of the possible advantages and disadvantages of forming its own medical malpractice insurance company. It is interesting in this regard, however, that the insurance experts with whom the Association is working, do not claim as an advantage that malpractice insurance rates in Arizona would be decreased by such a move. In fact, their preliminary schedule showed an increase (in some cases substantial) over present rates. Indeed, the principal advantage claimed by the insurance experts was that malpractice insurance under such a proposal would at least continue to be availabale at some price for a reasonable length of time. This but underscores the seriousness of the problem."

Meeting adjourned 3:18 p.m.

Edward Sattenspiel, M.D.
Secretary

Future Medical Meetings

ST. JOSEPH'S HOSPITAL AND MEDICAL CENTER
DEPARTMENT OF PSYCHIATRY AND DEPARTMENT OF MEDICAL EDUCATION
Present a symposium on
"Management of Anxiety and Depression"
Saturday, December 12, 1970
Hospital Auditorium
350 W. Catalina Drive
Phoenix, Arizona

PROGRAM

9:00 a.m.
Late Registration (Coffee Hour)
9:30
Welcome, Mr. T. Abner Huff, Hospital Administrator
Introduction of Speaker Thomas F. Kruchek, M.D. Psychiatrist
9:35 - 10:30
"What In Psychiatry Helps"
Carroll M. Brodsky, M.D., Ph.D. University of California School of Medicine
10:30 - 11:50
What Helps in Non-Psychiatric Practice
Joseph C. White, Jr., M.D. Moderator
"A Former G.P. Speaks"
Wayne F. Winn, M.D. Psychiatrist
"An Internist Looks at the Patient"
Ernest W. Smith, M.D. Internist
"When the Nervous System is Affected"
Charles L. Echols, M.D. Neurologist
"The Physician's Reactions to the Depressed Patient" John R. Zell, M.D. Psychiatrist
11:50 - 12:15
DISCUSSION
12:15 - 1:30
LUNCHEON

AFTERNOON SESSIONS
ANXIETY AND DEPRESSION IN CHILDREN AND ADOLESCENTS
1:30 - 3:00
Introduction, Raymond A. Huger, M.D. Psychiatrist
John R. Keefrey, M.D. Moderator
"How to Recognize It"
Fred B. Lipovitch, M.D. Child Psychiatrist
"Chemotherapy Management"
Lars Slette, M.D. Child Psychiatrist
"Psychotherapeutic Management of Anxiety and Depression"
Herbert L. Collier, Ph.D. Child Psychologist
3:00 - 3:30
Discussion

ARIZONA HEART ASSOCIATION FOURTEENTH ANNUAL CARDIAC SYMPOSIUM

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Phoenix, Arizona
January 22 - 24, 1971

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Joseph Perloff, M.D.
Gilbert Blount, M.D.
Rene Fabalero, M.D.

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Arizona Heart Association
1720 E. McDowell Road
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Saturday, December 5, 1970

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The size of the class will be limited; therefore, it is suggested that applications be made as early as possible.

ACCREDITATION:
AAGP

INSTRUCTORS:
Richard E. H. Duisberg, M.D.
Howard S. Gray, M.D.

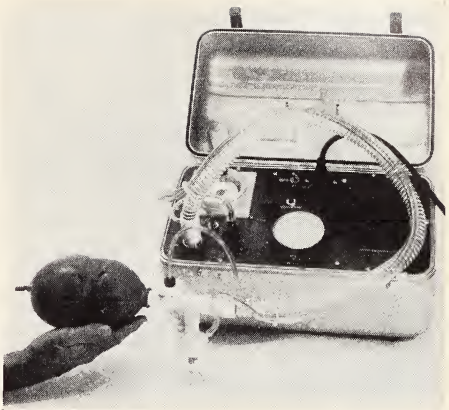
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DECEMBER 1970 VOL. 27, NO. 12

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References: 1. Batterman, R. C., and Grossman, A. J.: Fed. Proc. *14*:316, 1955. 2. Goodman, L. S., and Gilman, A., ed.: The Pharmacological Basis of Therapeutics, ed. 3, New York, The Macmillan Company, 1965, p. 331. 3. Kestler, O. C., and Gyurik, J.: Industr. Med. Surg. *31*:372, 1962. 4. Forster, S., *et al.*: Amer. J. Orthop. *2*:285, 1960. 5. Friend, D. G.: Clin. Pharmacol. Ther. *5*:871, 1964.

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DECEMBER, 1970/VOL. 27, NO. 12

ARIZONA MEDICINE

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1/22/68—Treatment with 5% 5-FU cream commences. Patient K.L. showing widespread but mild solar keratoses (also known as actinic keratoses).



Original Articles



ROBERT C. BRIGGS, M.D.

CHRONIC PROLIFERATIVE GLOMERULONEPHRITIS TREATED WITH ALTERNATE DAY STEROID THERAPY

THE TREATMENT OF CHRONIC PROLIFERATIVE GLOMERULONEPHRITS WITH ADRENAL CORTICOSTERIODS HAS BEEN LIMITED BY SERIOUS SIOE EFFECTS. THE PATIENT REPORTED HERE WAS TREATED FOR 3 YEARS WITH MODERATELY LARGE DOSES OF PREDNISONE USING AN ALTERNATE OAY PROGRAM. THE CLINICAL RESPONSE WAS GOOD ANO THERE WAS NO EVIDENCE OF AORENAL SUPPRESSION OR SERIOUS SIOE EFFECTS.

A 16 year old white female (GM) was admitted to Good Samaritan Hospital, Phoenix, Arizona, September 12, 1966, for evaluation of hypertension and proteinuria.

The patient had been having frontal headaches for two months. Two years prior, patient was found to have protein in her urine on a routine school physical examination. Her blood pressure at that time was 150/100. She was treated with choloromycetin for a kidney infection. The patient did well, except for occasional bouts of "small amounts of pus" in the urine until one month prior to admission when she was found to have a blood pressure of 160/110 and proteinuria.

Four years ago, the patient was treated for headaches and told she had pseudo-tumor cerebri. She had asthma as a child with the last attack eleven to twelve years ago. The patient had also been taking thyroid off and on for the last four years for low thyroid function. The patient's mother, age 49, also suffered from high blood pressure.

On examination, the blood pressure was 160/110. Temperature was 99, the pulse 100, and respirations 16. She presented as a well developed, well nourished, slightly obese white female, dark complexion, who was oriented and cooperative. There was no edema, and funduscopic showed narrowing of the arterials and a small hemorrhagic area in the left eye. The examination of the chest and heart were normal. The abdomen was negative for tenderness or masses.

A Howard test and renal arteriograms indicated bilateral disease; an open renal biopsy (see photo) was performed after I. V. P. which showed Chronic Proliferative Glomerulonephritis, type questionable. The BUN was 60 mg. and the blood creatinine was 3.4 mg., and the urine contained 2+ albumin. An immunofluorescent stain showed light deposits of fluorescence on the basement membranes.

Treatment — The patient was placed on 80 mg. Prednisone once every 48 hours. A diuretic, Hydrodiuril, was given for the blood pressure elevation and later, Aldomet was used — see charts.

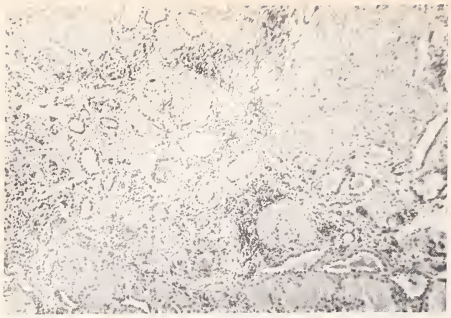


Figure 1. — Multiple Hyalinized Glomeruli (X40).

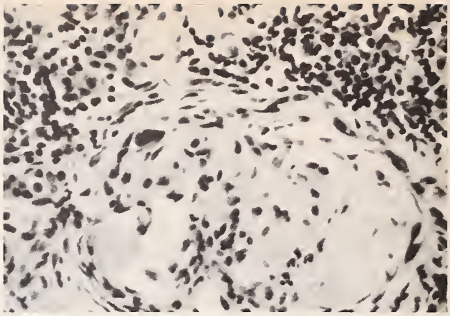


Figure 2. — A single Hyalinized Glomerulus (X140).

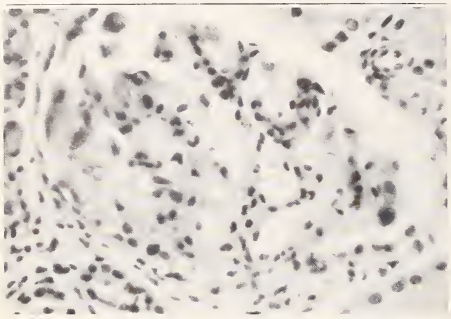


Figure 3. — Glomerulus undergoing active proliferation with thickening of the basement membrane. (X140).

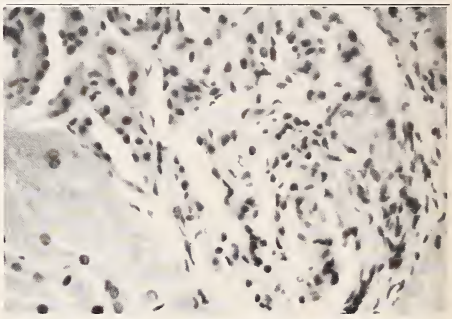
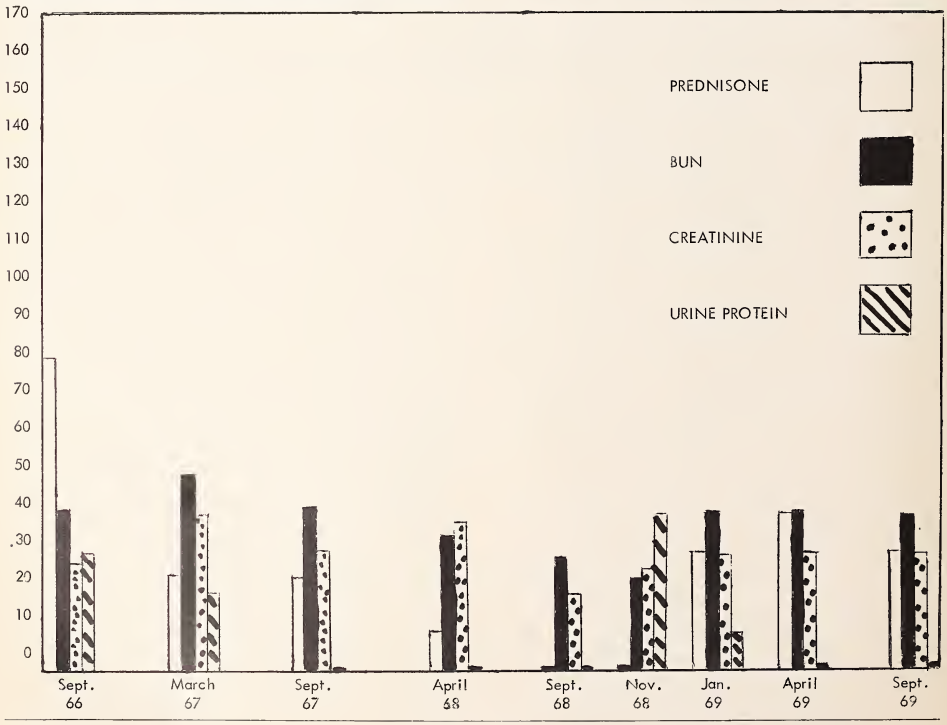


Figure 4. — Showing Thickened Basement membrane.



Results

From the table it can be seen that this patient improved first by clearing of the protein in the urine. After almost two years a change did occur in the creatinine and BUN. Her blood pressure was controlled with Aldomet and diuretics. Its progress must be attributed in part to the use of these drugs and not necessarily to the Prednisone effect. A repeat closed renal biopsy was unsuccessful but an adrenal stimulation test performed at that time, after two years of intermittent therapy show a good urine response in levels of hydroxysteriods, namely, 14 mg. percent before and 31 mg. percent after IV ACTH.

Steroids were discontinued after two years and within one month she began to show proteinuria which rapidly increased to 4+ protein at which time she was placed back on Prednisone. Two months later, the urine was normal. The creatinine and BUN also rose during the time that the steroids were withdrawn.

Discussion

This 19 year old white female was diagnosed three years ago by open renal biopsy as having Chronic Proliferative Glomerulonephritis with many hyalinized glomeruli and minimal evidence of antihuman globulin attached to the basement membranes by the fluorescent method. She was treated over this three year period with moderate to heavy doses of Prednisone on an intermittent dose schedule and has improved both clinically and chemically. Steroids were discontinued after two years but her disease relapsed, which was corrected by institution of the steroid.

The use of the intermittent dose schedule of Prednisone is patterned after Harter et al.[1] It is noteworthy that the lack of side effects with this technique made it possible to prolong the treatment, where prior attempts to treat with steroids was fraught with much danger and hence lead to its abandonment as a treatment in this disease.[7]

It must be mentioned that in the literature there are reports stating that the intermittent dose schedule is complicated by side effects and adrenal suppression. These articles do not use the 48 hour schedule but rather a three day on and four day off routine — such as that reported by Adams.[2] Others like Johnston[3] and Sayka[4] using the alternate day method report minimal to no side effect as noted in this report. To my knowledge this is the first case report involving the treatment of chronic glomerulonephritis. A 3 year period study at U. C. L. A.[5] is under consideration using a similar approach with SLE as well as Chronic Glomerulonephritis.

Shearn[6] reports on the use of Mercaptopurine in the treatment of nephrosis in patients "resistant" to steroids. This is an unfortunate choice of words; however, since the regimen was conducted over only a four month period at most and steroids were given as a daily routine, thereby introducing side effects and early abandonment of treatment.

The adrenals were not suppressed after two years, according to the ACTH stimulation test. It would therefore seem advisable to consider intermittent steroid therapy in the treatment of Chronic Proligerative Glomerulonephritis. Al though the blood chemistry reflecting renal function does not show improvement there is definitely no deterioration and the fact that the urine has improved to normal would indicate that the disease has been controlled.

Summary

A three year follow up study is reported in which a young woman who was diagnosed as having Chronic Proliferative Glomerulonephritis with uremia and hypertension was treated with moderate to heavy doses of steroids on an intermittent basis. Results showed no deterioration in renal function and dramatic improvement to normal levels in urine studies, without any side effects and without adrenal suppression.

Although it is well known that in certain cases of Glomerulonephritis steroids are of benefit, their effectiveness has been greatly limited by the side effects of the drug. This article, employing the alternate day therapy, circumvents this problem so that the maximum benefits of the steroid can be obtained. If parallel studies should support this result, then the course of this disease, along with other selected diseases in which corticoid drugs are used, may be appreciably altered.

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RACIAL DISTRIBUTION OF INSTITUTIONALIZED MONGOLOIDS

BYRON C. MOORE
ARIZONA STATE UNIVERSITY

DAVID LEVINSKY
EASTERN ARIZONA TRAINING PROGRAM

Introduction

Previous studies have reported mongolism (Down's syndrome) to be present in all "races" of mankind. In fact studies give strong indications that mongolism does not show racial preference, as has been reported for some mental retardation etiologies such as Tay-Sach's disease. Parker (1950) in an Indianapolis study and Kashgarian and Rendtorff in a Memphis study found the birth rate for Negro and white mongoloids to be quite similar. Wagner (1962) studied Honolulu Orientals and found the prevalence of mongolism to be similar to that observed in Caucasian populations. The purpose of the present study was to compare the racial distribution of a large number of institutionalized mongoloids to see if there was a significant difference in racial prevalence.

Method

Data for this study was taken from the 1968 annual regional census of 22 western institutions for the mentally retarded conducted under the sponsorship of Western Interstate Commission for Higher Education. Collection method, data characteristics and reliablity studies of this census have already been adequately reported in the literature. (Moore and Payne, 1968; Payne, 1968; Payne, Johnson and Abelson, 1969). Comparison of the racial distribution of 2,748 mongoloid retardates was made with expected frequencies based upon racial distribution of 21,509 institutionalized non-mongoloid retardates. Analysis of these data was undertaken using chi-square statistical procedures. (Garrett, 1953). The American Association on Mental Deficiency classification system for retardation level and medical etiology of mental retardation (Heber, 1961) were used in the census and consequently in this study as well. Data was retrieved and processed by computer centers at Pacific State Hospital, Pomona, California, and Arizona State University, Tempe, Arizona.

Study Population

A total of 24,257 institutionalized retarded persons were screened in order to identify and locate those individuals with a diagnosis of mongolism (Down's syndrome). Approximately 43% of both the mongoloid group (N = 2,748) and the non-mongoloid group (N = 21,509) were female, so the groups did not differ significantly with regard to sex ratio. Reference to Table I, however demonstrates that the two groups did

TABLE I
Retardation Level Distribution of Study Population.

	Normal	Borderline	Mild	Moderate	Severe	Profound	Unknown
Mongoloid	2	7	81	497	1127	963	71
Non Mongoloid	126	789	2466	3939	4872	7656	1661
Expected Mongoloid Frequency	17	106	332	531	657	1003	

TABLE II

Racial Distribution of Study Population.

	White	Negro	Sp.-Am.	Indian	Oriental	Polynesian	Mixed	Unk.
Mongoloid	2493	32	100	21	40	7	12	43
Non-Mongoloid	17186	679	1362	331	472	190	218	1071
Expected Mongoloid Frenquency	2300	83	171	41	60	16	27	

differ significantly with regard to intellectual levels. (Chi-square value = 638.61 P = <.0001)

The mongoloid group was composed of a much higher percentage of severely retarded persons than was the comparison group. The mean age of all retarded in the study was 24.4 years.

Study Results

Table II illustrates the numerical frequencies of the mongoloid population, all other etiologies, and the expected mongoloid distribution by race. The expected mongoloid distribution is in effect, a prediction of the racial distribution of the mongoloid population projected from the actual racial distribution of the total institutional population (excluding mongoloid residents). When the expected frequencies are compared with the actual frequencies for each racial group several important discrepancies are readily apparent. (Chi-square value = 106.83 P = <.0001) It is evident that there are significantly less mongoloid patients in each of the minority racial groups when compared with the expected frequency and that there are substantially more patients than expected in the white group. Unfortunately the exact cause for this phenomenon cannot be readily pinpointed. If the results of the Kashgarian and Rendtorff study can be generalized, that is if the prevalence of mongolism is equal in white and Negro populations, it is difficult to explain why mongoloids of differing racial backgrounds are institutionalized at a different rate than are other etiologies. There seems to be a strong possibility that it is not the mongoloid admission rate that is variant, since genetic abnormalities tend to adhere to fixed prevalence rates. On the other hand, a higher percentage of etiological factors represented in the 21,509 strong comparison group are related to infection, trauma, prenatal care, malnutrition and other factors that reflect socio-economic and therefore racial minority group bias.

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SLAUGHTER ON AMERICAN HIGHWAYS FAR WORSE THAN WAR

It is fashionable to protest against the Vietnam War because of war casualties along with political or diplomatic considerations. This premise is stated directly or by innuendo by many Americans and by many of the communications media.

The time is long overdue to emphasize that the slaughter on American highways took more lives last year, in only nine months, than were killed in the entire nine-year Vietnam War. Two or three times as many youths under 24 are killed on our highways as individuals over that age. The Armed Forces Journal (1970), reports 39,979 American deaths and 263,126 injuries from nine years of the Vietnam War. The National Safety Council (1970), accounts for 437,000 U.S. automobile deaths and 13,800,000 disabling highway injuries in the same period. The costs and human suffering of civilian injuries are staggering.

The automobile has taken 1,750,000 American lives during its 70-year history, which is far more than resulted from all the wars in which this nation has ever taken part.

At present over 50% of mayhem created by automobiles is due to alcohol and we can expect additional casualties because of increasing drug abuse.

Legislation is overdue to deprive the drunken or drugged driver from the privilege of driving until he has had psychiatric clearance. More and efficient transportation should be provided to lessen the need for private vehicles. Also, renewed efforts are needed to design cities, highways, and various types of motor vehicles to prevent injury and death in case of an accident.

It must be emphasized that injuries are the leading killer of Americans before the age of 40 and that preventative measures are essential if we are to end this plague of the 20th century — death due to accidents.

John R. Green, M.D.

AM *Editor's Page*

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President's Page



Halloween and Thanksgiving are past and the Christmas Season is upon us. As you think of Arizona and Christmas, you realize just how beautiful it is, and how fortunate we are to be here. Weatherwise we range from northern wintry and icy blasts, the snowy ski areas of Flagstaff and the White Mountains, to the citrus groves of Phoenix, Tucson and Yuma.

Where else can you ski in the morning on Mt. Lemmon, swim in the afternoon with lunch at the pool, and have dinner in Mexico an hour from home if you so desire?

You can spend the traditional American Christmas in the snow that is now traversed by Snowmobiles rather than Old Dobbin and the sleigh, or you can spend it in the sun and on the golf course after the traditional presentation of gifts.

When you receive the traditional Christmas issue of Arizona Highways, you are aware of the superb photography, and illustrations by my old friend, Ted de Grazia — and you are thrilled by this heritage. We have magnificent landscapes and mountains. We can still breathe pure mountain air, drink from clear, cold, pure mountain streams, look up at smog free skys that have beautiful starry and moon filled nights. We can fish for bass and trout, hunt for the Arizona big ten game animals, go bird watching in set-aside sanctuaries, walk through stands of pine, aspen and oak, observe ranches that raise sheep and cattle and, you know, when you see and think about this — there can be no other place than Arizona.

Our Christmas gift to all posterity, which may include your children and/or your grandchildren, is to NOT allow what has happened to so many other magnificent states in these United States, happen to Arizona.

Let us as physicians take a major role in decision and support of the necessary ecological measures to prevent all pollutions, so this great state will not be destroyed by this mass of garbage and filth.

Remember when you came to Arizona and there was no smog over Phoenix and Tucson? Get out the old Arizona Highways and reminisce and look at how it was. Technology and time will not allow us to return to yesterday; however, if we had started yesterday we might have saved our heritage and protected and insured the existence of tomorrow. We don't want tomorrow cancelled because of a lack of interest.

I truly wish you a 'Muy Feliz Navidad and Un Prospero Ano Nuevo', and hope they both continue on and on and on . . .

Fred H. Landeen, M.D.
President

Dean's Page

COMPUTERS IN MEDICINE

It has been said that computers will revolutionize medicine. Whether or not this is true, they can and will have a significant impact on the medical profession. Computers will become a tool, like the stethoscope, upon which physicians and other medical personnel will depend.

How can this happen? Historically, operational computer applications have dealt with large mathematical problems. Landing a man on the moon required the rapidity and accuracy of the computer to solve the necessary equations and continuously monitor the systems.

Medicine, however, cannot be expressed as an equation. In this environment, the computer is neither a decision-making nor a problem-solving machine. It will not diagnose nor prescribe treatment. Rather, it serves as a means for handling large masses of information. It should be considered an extension of the storage and retrieval capabilities of the human brain.

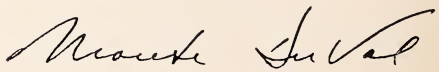
The computer can store both alphabetic and numeric information. It can then review the information, observe unusual events, retrieve specific items of interest, organize these data, and report them in a concise, explicit format for the physician's use. For example, the computer is much more reliable at recalling a previous laboratory test than is the human brain. The necessity for taking advantage of this capability is becoming more and more urgent every day. Mushrooming medical technology has produced a host of laboratory tests which were unknown fifteen to twenty years ago. Handling these data and utilizing them efficiently is critical to the care of the patient and length of his hospital stay. Computers can play an important role in organizing and presenting data in a clear, concise manner so that the physician's decision-making capability can be fully utilized.

Another very critical problem in hospitals today is the flow of information from one area to another. Computer terminals are being used to relieve this problem and centralize all data flow, whether professional or related to getting the details for the business office on patient services, thus simplifying the total administrative process.

A specific example of a more widespread use of computers in medicine today is in the clinical laboratory. Computers have been accepted here for their capability in organizing and controlling the information flow within the laboratory. They are interfaced to on-line terminals and on-line automated laboratory devices. All requests for laboratory tests are entered into the computer and when the results are received from the automated laboratory device, the computer immediately associates each result with the correct patient. It then organizes the results for reporting back to the designated area. This approach has considerably simplified the paper work of the laboratory and has organized the data for better utilization by the physician.

To utilize the information-handling capabilities of the computer even further, we must develop a close relationship between the computer professionals and the medical professionals. The computer professionals cannot adapt computers to medicine unless the medical profession is willing to identify and define their areas of possible application. In some instances, it will be necessary for physicians to take account of the fact that computers operate better on data which are well structured for more rapid storage and retrieval. As an example, Dr. Lawrence Weed, of the University of Vermont, tackled this problem with regard to the medical record and developed the "problem-oriented record." We must be willing to make other, similar adjustments.

To stay abreast of developments and to provide the proper relationship between the computer professionals and the medical professionals, the Medical Center has developed a Division of Data Processing. The Division is currently involved in developing a traditional business system for the University Hospital and also in a computer system for the clinical laboratories. We feel that these two applications are examples of how we can move toward a more effective computer utilization at the University of Arizona Medical Center.



Topics Of Current Medical Interest

A BOOK REVIEW

Scope Manual on Nutrition, by Michael C. Latham, M.D.; Robert B. McGandy, M.D.; Mary B. McCann, M.D., and Fredrick J. Stare, M.D., the Department of Nutrition, School of Public Health, Harvard University, Boston, Mass. Published by the Upjohn Co., Kalamazoo, Mich., Baird A. Thomas, Editor.

"As yet, instruction in the principles and practice of proper nutrition remains almost nonexistent in most of our medical, dental, public health and nursing schools today. The biochemical and physiological basis of nutrition is frequently no longer a part of the pre-clinical sciences. Clinically the major emphasis has been placed more on drugs and surgery than on the nutritional aspects of management and almost no attention is paid to the role of nutrition in the prevention of illness."

That paragraph, taken from the introduction to this well-written and most informative book, explains why it was written, and for what readership.

According to Dr. Stare, the book was many years in the writing, not because it is a massive work. It isn't. It encompasses some 106 pages, illustrated with color photographs, charts and tables. The reason it took so long is because each contributor checked and re-checked his facts, and then the entire manuscript was carefully sifted to make certain nothing had crept in that shouldn't be there. The result is a carefully compiled, first-rate handbook on nutrition written expressly for medical students to help round out their medical education, nurses, members of medical school faculties, and those physicians who can use in their practices the knowledge contained in this book.

The book, by the way, is not for sale. Upjohn intends to make it available at no cost to members of the medical profession—students, schools, nurses, etc. It represents a considerable contribution to medical education, and Upjohn is to be complimented for it.

Incidentally, the book required so much time in the making that two of its contributors no longer are at Harvard.

Dr. Latham now is Professor of International Nutrition at Cornell, and Dr. McCann is now with the United States Public Health Service.

Practically everything anyone would want to know about nutrition is in this book, as a glance at the table of contents will show. Entries run from "Recommended Dietary Allowances of Nutrients," and "Special Medical Problems with a Nutritional Component," to the nutrients themselves, the vitamins (ever wonder about the role of Vitamin E in nutrition?) and appendices listing food values, mineral and cholesterol contents of foods, and weight tables for those 25 years of age and over.

Not only will this book make a valuable addition to any student's or physician's library — it will stand unchallenged for a very long time as the medical profession's answer to the food faddists. If this doesn't shut them up, nothing will.

Julian DeVries
Medical Editor
The Arizona Republic

ArMA Reports

THE MINUTES APPEARING IN THIS SECTION HAVE BEEN EDITED TO CONSERVE SPACE. A COMPLETE COPY OF THE MINUTES OF ANY MEETING WILL BE MAILED TO ANY MEMBER REQUESTING THEM.

GOVERNMENTAL SERVICES COMMITTEE

The meeting of the Governmental Services Committee of the Arizona Medical Association, Inc., held Saturday, October 17, 1970, in the Headquarters Building, 810 West Bethany Home Road, Phoenix, Arizona, convened at 1:40 p.m., John P. Heileman, M.D., Chairman presiding.

ROLL CALL

PRESENT: Drs. Farnsworth, Stanford F., Heileman, John P., Chairman, Porter, Jr., Dwight H., Reed, Wallace A., Spendlove, George A., Walker, Glen H.

STAFF: Mr. Barnett, Gary L., Associate Executive Director.

GUESTS: Mr. Beninger, David, Assistant Administrator, Phoenix Medicare Claims Administration, Aetna Life & Casualty Company; Mr. Foster, John C., Executive Director, Arizona Blue Cross/Blue Shield; Koren, Paul, M.D., Medical Director, Blue Cross/Blue Shield.

EXCUSE: Drs. Alexander, Clifton J.; Eicher, Walter R.; Gordon, Harold N.; Grobe, James L., President Elect; Landeen, Fred H., President; Letourneaux, Stephen; Leverson, Alan I.; Lingenfelter, John G.; Melick, Dermont W.; Moraca, Patrick P.; Sattenspiel, Edward, Secretary; Smith, Samuel A.

MINUTES

Minutes of the meeting held June 6, 1970, were approved as distributed.

PART A — INTERMEDIARY —

The committee reviewed a form entitled "Physicians Medical Treatment Plan and Certification—Home Health Services." It was noted all the information requested on this form is required by the Social Security Administration to determine coverage under Medicare for Home Health Benefits.

IT WAS MOVED AND CARRIED TO RECOMMEND ENDORSEMENT OF THE PHYSICIANS MEDICAL TREATMENT PLAN AND CERTIFICATION — HOME HEALTH SERVICES TO THE BOARD OF DIRECTORS.

PART B — INTERMEDIARY — AETNA LIFE & CASUALTY CO.

Mr. Beninger gave a Status Report of their claims operation in Arizona and informed the committee that they are experiencing very few problems at this time. He further advised that the request for compensating the members of the Section on Medical Review has been forwarded to their Home Office and to the Social Security Administration; however, they have not received a reply.

SECTION REPORTS

Section on Economic Aspects of Medicine

The committee discussed the scope of this Section's activities. A continuing review and appraisal of the effects of screening profiles and other guidelines utilized by the local carrier, as well as appraising adverse publicity of physicians' fees as regards the Medicare Program, were suggested as appropriate functions of this Section.

Dr. Walker advised that Drs. Richard Flynn and Dwight Porter have accepted membership to this Section.

Section on Care of Medically Indigent

Dr. Eicher reported prior to the meeting that Drs. Stanford F. Farnsworth and Wallace A. Reed have accepted membership to the Section. He further reported that he has met with Mel Goodwin, Ph.D., Arizona Health Planning Authority, and that they are desirous of support of ArMA for their Programs of Indigent Care.

Section on Medical Review

The minutes of meetings held July 1, August 5 and September 2, 1970, were distributed to the committee for information.

The following are members of the Section on Medical Review:

Drs. Moraca, Patrick P., Chairman; Alexander, Clifton J.; Curtin, John W.; Johnson, Chalmers D.; Myers, William R.; Polson, Donald A.; Reed, Wallace A.; Scharf, George.

Section on O.E.O. and Neighborhood Health Centers

The following physicians have accepted appointment to membership of the Section on O.E.O. and Neighborhood Health Centers:

Drs. Alexander, Clifton J., Chairman; Bates, Robert R.; Hardin, Oscar A.; Lyle, William H.; Ortiz, Augusto; Schoen, Roland F.; Tang, Pearl M.; Walker, Glen H.; Wong, Edward C.

Section on Research and Study

The Bennett Amendment No. 851 to the Social Security Amendment of 1970, H.R. 17550 was discussed per the request of Dr. Kahle's letter of September 19, 1970, and California Medical Association's wire of October 3, 1970.

IT WAS MOVED AND CARRIED TO RECOMMEND TO THE BOARD OF DIRECTORS SUPPORT OF THE PEER REVIEW AND CERTIFIED HOSPITAL ADMISSION PROGRAM (CHAP) CONCEPT; HOWEVER, IT IS INAPPROPRIATE TO TAKE ACTION ON THE AMENDMENTS UNTIL THE FINAL FORM IS KNOWN.

Section on Utilization Review

Dr. Spendlove reported the following physicans have accepted appointment to the Section on Utilization Review:

Drs. Spendlove, George A., Chairman; Bishop, Jr., William A.; Bright, Daniel; Cogland, John L.; Craig, Carlos C.; Dudley, Jr., Arthur V.; Dysterheft, Arnold H.; Ochsner, II, Albert J.

IT WAS MOVED AND CARRIED THAT THE FOLLOWING "POSITION PAPER" BE RECOMMENDED FOR ADOPTION BY THE BOARD OF DIRECTORS OF THE ARIZONA MEDICAL ASSOCIATION:

UTILIZATION REVIEW: A POSITION PAPER

A Recommendation to the
Board of Directors of The Arizona Medical Association, Inc.

The Board of Directors and the House of Delegates have formally adopted as a major objective the use of all possible resources to increase the effectiveness of peer review (including utilization review) at all levels. With particular reference to hospitals and extended care facilities, we feel it necessary to state the appropriate role of utilization review and the settings in which it must function. In spite of our previous and continuing efforts in peer review, such a statement is now necessary because we recognize that these efforts are now being subjected to new and potentially destructive kinds of pressures from outside the profession. Consequently, in terms of future utilization review activities, ArMA will base its policy decisions and actions on the following professional bases.

1. Quality control is our prime objective and cannot be allowed to become secondary to cost control. As we necessarily become more and more concerned with monetary savings, we must seek guarantees that quality and appropriateness of care do not suffer in the process.
2. Our eforts must be geared to the primary objective of the provision of adequate and appropriate patient care, rather than to the administrative requirements of government programs. We must never lose sight of the fact that our commitment, organizationally and individually, is to all of our patients. Any worthwhile peer review system will apply equally to the patient public at large as well as to those patients who are recipients of government assistance.
3. We must assure that when we enter into agreements with government regarding peer review, the basis for such agreements is solidly founded on the concept of a true partnership — a meaningful relationship which recognizes the importance of professional guidance and competence. Government officials cannot expect physicians to continue their efforts in helping government programs to succeed, if they are unwilling to fund such programs realistically or to consult with the medical profession before implementing restrictive regulations.
4. We will continue to encourage the development of various apropriate and inovative systems on the local level to implement the concept of utilization review which meets the objectives of both quality and cost control simultaneously without diluting our effectiveness in our area of major responsibility — quality.
5. We emphasize again that the discussions regarding review mechanisms must represent the product of sharing among fiscal intermediaries, state agencies, state and county societies and physicians. All must be in a position to place issues and questions before an open forum and to arrive at mutually acceptable approaches if such programs are to serve in the best interest of our patients.

The committee discussed the Section's recommendation that the members of Section on Utilization Review be compensated when they become involved in specific case and/or claim review.

IT WAS MOVED AND CARRIED TO RECOMMEND TO THE BOARD OF DIRECTORS THAT THE MEMBERS OF THE SECTION ON UTILIZATION REVIEW BE COMPENSATED BY THE APPROPRIATE AGENCY WHEN INVOLVED IN SPECIFIC CASE AND/OR CLAIM REVIEW AT THE RATE OF $50.00 PER HOUR PLUS $0.12 A MILE TRAVEL.

COMMUNICATIONS

The committee considered the request of the Student American Medical Association Liaison Committee of the Board of Trustees of the AMA to endorse SAMA's Indian Health Project.

IT WAS MOVED AND CARRIED TO RECOMMEND THAT THE BOARD OF DIRECTORS OF THE ARIZONA MEDICAL ASSOCIATION ENDORSE THE SAMA INDIAN HEALTH PROJECT WITHOUT FINANCIAL SUPPORT.

MEETING ADJOURNED 2:53 P.M.

Edward Sattenspiel, M.D.
Secretary
by
Gary L. Barnett
Associate Executive Director

FINANCE COMMITTEE

The first meeting of the Finance Committee of the Arizona Medical Association, Inc., held at 810 West Bethany Home Road, Phoenix, Arizona on Saturday, October 3, 1970, convened at 12:15 p.m., Philip E. Dew, M.D., Treasurer and Chairman presiding.

ROLL CALL

PRESENT: Drs. Dew, Philip E., Treasurer & Chairman; Landeen, Fred H., President; Sattenspiel, Edward, Secretary; Shapiro, Seymour I., Standifer, John J., Vice President.

Staff: Messrs. Barnett, Gary L., Associate Executive Director; Robinson, Bruce E., Executive Director.

EXCUSED: Drs. Grobe, James L., President-Elect; Moraca, Patrick P.

ROLL AND FUNCTION

Dr. Dew briefly discussed the background and reason for asking that a Finance Committee be formed. He indicated that its prime function would be to advise the Treasurer on the budget preparation and all other financial matters.

Bylaws

The committee determined to recommend the following concept for consideration of the Articles and Bylaws Committee for subsequent inclusion therein:

1) That the committee be advisory to the Treasurer in budgetary and financial matters.
2) That the Treasurer be the chairman of the committee.
3) That in addition to the Treasurer, the committee should consist of at least three additional members.
4) That meetings of the committee are subject to the call of the chairman.

SALE OF BONDS AS A FINANCING MECHANISM

Dr. Jarrett suggested that consideration be given to offering bonds to the membership as a means of financing instead of using the bank. Mr. Robinson was instructed to check the possibility, with counsel, of selling "promissory notes" instead of bonds. He was also instructed to check with the bank about the possibility of selling the building fund accounts receivable as a means of getting out of our present financial problem.

BUDGET PREPARATION

Dr. Dew reviewed the mechanism involved in the budget preparation. It was noted that "budget decisions" are very often "policy decision" and therefore preparation of the budget often dictates the activities of all committees.

It was recommended that the chairman of each committee be contacted to ask for their recommendations for future budget amounts. Mr. Robinson was also instructed to determine the reasoning behind having our present fiscal year coincide with the calendar year.

INCOME PRODUCING CONCEPTS

Mr. Robinson, as earlier directed, presented several concepts that would result in income to the Association.

Rental of First Floor

Mr. Robinson reported that, depending on the specific arrangement and possible tenant, we could realize from $20,685 to $30,000 annual income by completing and renting the first floor of the building. The "rough" estimates of completing the first floor, again depending on the specifics, would run between $83,000 and $112,000 based on an architect's statement that current construction costs for this type of work runs from $15 per square foot to $20 per square foot.

Mr. Robinson was asked to investigate this matter further and report back to the committee.

Printing

The concept of having our own printing department was discussed in-depth.

Mr. Robinson reported that it would cost about $30,000 to equip a printing department and it would cost between eight and ten thousand per year in personnel and supplies. He pointed out that we expended $15,953.17 for printing services (other than the Journal) during 1969.

Mr. Robinson was instructed to explore the possibility of lease-purchase of the equipment and report back at the next meeting.

Auto Leasing

Mr. Robinson reported on the proposal made by the Gold Key Auto Lease organization. Their proposal would give members a 10% discount on any normal lease rate and would provide a 5% discount funded directly to the Association in cash. Mr. Robinson was to proceed further with this program.

"Physician's Assistants" School

The committee discussed the possibility of creating a Physician's Assistant School, but took no action.

Meeting adjourned 2:55 p.m.

Edward Sattenspiel, M.D.
Secretary.

EXECUTIVE COMMITTEE

The meeting of the Executive Committee of the Board of Directors of the Arizona Medical Association, Inc., held Saturday, October 3, 1970, in the offices of the Association, 810 West Bethany Home Road, Phoenix, Arizona, convened at 3:14 p.m., Fred H. Landeen, M.D., President and Chairman presiding.

MINUTES

Minutes of the meeting held July 25, 1970, were approved as distributed.

PRISON SURVEY

The letter received from Mr. Allen Cook, Director, State of Arizona, Department of Corrections requesting help in the development of good medical care treatment for inmates of the State's various institutions was reviewed.

Dr. Landeen asked that Richard O. Flynn, M.D. chair this committee. He also appointed Glen H. Walker, M.D. and Elmer L. Heap, M.D. to the committee and asked Dr. Flynn to add others at his discretion.

PATZMAN AGREEMENT

The matter of the request from IMC to ratify their proposed agreement with John Patzman was discussed. It was determined not to act on this matter until after the Board acts on the Fred W. Kilbourne analysis of the IMC proposal at their meeting of October 4, 1970.

Mr. Robinson reviewed Mr. Patzman's letters of 8-31-70 and 9-9-70 in which Mr. Patzman asks for some arrangement whereby he is "an agent working for ArMA" in malpractice matters.

IT WAS MOVED AND CARRIED THAT MR. PATZMAN BE ADVISED THAT NO SUCH ARRANGEMENT BE FORTHCOMING AND THAT A CHECK IS TO BE DRAWN IN THE AMOUNT OF $500 TO PATZMAN/ALLEN/LAMB & ASSOCIATES, INC., TO COVER "OUT-OF-POCKET" EXPENSES RELATING TO THE MALPRACTICE SURVEY AS WAS ORIGINALLY DISCUSSED AT A MEETING HELD APRIL 3, 1970, BETWEEN DR. FLYNN, DR. ROOS, MR. PATZMAN, MR. BARNETT AND MR. ROBINSON.

NAVAJO COUNTY MEDICAL SOCIETY

The letter from George G. Bertino, M.D., President, Navajo County Medical Society dated 9-9-70 requesting a formal legal opinion regarding the suspension of staff privileges at the Winslow Memorial Hospital.

The committee determined that this matter is without the Association's jurisdiction and is a matter for the local hospital board and the medical staff.

POSITION PAPER ON MALPRACTICE

The matter of obtaining Board approval of the statement on the subject matter prepared at Senator Cardella's request which was dated 9-18-70 was discussed at length.

It was determined to ask the Board to officially approve this statement as the position of the Association.

Meeting adjourned 6:10 p.m.

Edward Sattenspiel, M.D.
Secretary.

Future Medical Meetings

The Arizona Thoracic Society

announces

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for physicians

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FEBRUARY 18-20, 1971

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Los Angeles
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January 30-31, 1971

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Elias G. Theros, M.D.
Keith Jefferson, M.O.
Robert Wise, M.D.
William E. Powers, M.D.
Alexander Gottschalk

Fee: $30.00

Advance Registration:

Richard Witten, M.D.
2131 West 3rd Street
Los Angeles, California 90057

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Phoenix, Arizona

January 22-24, 1971

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Roman DeSanctis, M.D.
Joseph Perloff, M.D.
Gilbert Blount, M.D.
Rene Fabalero, M.D.

For information write:

Arizona Heart Association
1720 E. McDowell Road
Phoenix, Arizona 85006

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